# SOUTH CAROLINA FIRST STEPS
# EVALUATION OF PARENTS AS TEACHERS
# 2008-2016

## *December 2017*

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# South Carolina First Steps

# Parents as Teachers 2008-2016

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# Executive Summary

South Carolina (SC) First Steps to School Readiness was the nation's third statewide early childhood initiative, following North Carolina and California, originally passed into SC law in 1999[1]. The purpose of the initiative, as stated in §59-152-20 of the S.C. Code of Laws, is to *"… develop, promote, and assist efforts of agencies, private providers, and public and private organizations and entities, at the state level and the community level, to collaborate and cooperate in order to focus and intensify services, assure the most efficient use of all available resources, and eliminate duplication of efforts to serve the needs of young children and their families…"* The initiative's goals are to[2]

- Provide parents with access to the support they might seek and want to strengthen their families and to promote the optimal development of their preschool children;
- Increase comprehensive services so children have reduced risk for major physical, developmental, and learning problems;
- Promote high quality preschool programs that provide a healthy environment that will promote normal growth and development;
- Provide services so all children receive the protection, nutrition, and health care needed to thrive in the early years of life so they arrive at school ready to learn; and
- Mobilize communities to focus efforts on providing enhanced services to support families and their young children so as to enable every child to reach school.

Forty-six counties in SC receive First Steps funding based on population-level risk factor data. Each county offers services through a local First Steps Partnership with its own governing board, which decides on the services that best fit the needs of their particular community. Among these services is home visitation such as provided in the Parents as Teachers program, the subject of this report.

## Purpose of the Evaluation

*Section 59-152-50(7)* of the S.C. Code of Laws requires the evaluation of programs that comprise 10% or more of total programming spending. As one of these programs, the purpose of the current evaluation was to assess both program implementation and program achievements of First Steps' Parents as Teachers (PAT) home visitation model.

Parents as Teachers was founded in 1984; its mission is to promote *"the optimal early*

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[1] South Carolina Education and Economic Development Act, SC Code §59-152-10
[2] SC Code §59-152-30

*development, learning and health of children by supporting and engaging their parents and caregivers*.[3]"
The national Parents as Teachers logic model presents the program approach.  Namely, through implementation of the program's four core components (personal visits, group connections, screenings, and resource networks) and a focus on (a) parent-child interactions, (b) development-centered parenting, and (c) family well-being, the program will promote positive change in birth outcomes, parent knowledge, parenting capacity and practices, parent-child interactions, family health and functioning, and identification of child-level developmental needs.  Through these short-term outcomes, the program aims to address longer-term changes such as school readiness and thriving families.  Parents as Teachers meets parents and families "where they are" and uses a strengths-based approach to reinforcing family assets and setting and achieving family goals.  In South Carolina, the program focuses on highly vulnerable families, or families with multiple risk factors, with the goal of helping vulnerable families develop their strengths, realize positive changes in parenting and family well-being, and, ultimately, experience long-term and positive child and family outcomes.

The evaluation was designed to focus on program implementation and short-term changes, such as changes in parenting knowledge and capacity.  The evaluation assessed the extent to which the program was successful at meeting its implementation goals (including goals for serving the most vulnerable families) and achieving its direct outcomes of changes in parenting knowledge, capacity, etc.  The evaluation also examined the extent to which the program can be aligned with evidence that children in highly vulnerable families are benefitting, in that they are coming alongside less vulnerable peers in their developmental progress and school readiness.

The examination of program implementation was formative in nature and designed to assess whether the program was executed as intended between Fiscal Years 2008-09 and 2015-16 and successfully met the standards established for PAT in South Carolina. The standards established for PAT in 2013-14 were used for the current evaluation because that is the year in which the CIRCLE school readiness assessment was administered, which was used to examine child outcomes. The focus of the evaluation was on the standards directly addressing child outcomes (e.g., targeting at-risk populations, retention of clients in the program, home visits, etc.) versus standards related to monitoring program functions (e.g., staff qualifications, reporting and parent educator supervision, FSDC, etc.)[4].

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[3] https://parentsasteachers.org/who-we-are
[4] Note as well that National PAT standards have changed in the eight years between 2008-09 and 2015-16.  Thus, program monitoring elements varied over time to accommodate the changing standards.

The second part of the evaluation included summative elements involving parent and child outcomes, as described in the following evaluation questions:

1. What is the relationship between exposure to PAT between the ages of 0-3 years and children's Pre-K or Kindergarten readiness outcomes?
    a. How do child outcomes as measured by CIRCLE and grade retention vary when controlling for total months or years of enrollment? Total number of visits completed?
    b. If there is variation, what is the minimal level of exposure that appears to be necessary to achieve meaningful child outcomes as measured by CIRCLE scores and grade retention? Is this level consistent with PAT and SC expectations for program implementation?
    c. Are children with scores on ASQ/ASQ:SE indicating delays or potential delays more likely to receive special education services in pre-kindergarten or kindergarten?
2. What is the relationship between exposure to PAT and parenting outcomes as measured by KIPS/ACIRI?
    a. How do outcomes vary when controlling for total months or years of enrollment? Total number of visits completed?
    b. What is the minimal level of exposure that appears to be necessary to achieve meaningful parenting outcomes? Is this level consistent with PAT and SC expectations for program implementation?
3. What is the relationship between parenting outcomes as measured by KIPS/ACIRI and children's Pre-K or Kindergarten readiness outcomes as measured by CIRCLE scores and grade retention?
    a. Does a particular threshold level (or criterion-reference) in parenting appear to be related to child outcomes?
    b. Are gains in parenting associated with gains in child developmental progress or outcomes?
4. What is the relationship between exposure to PAT and interactive literacy as measured by KIPS/ACIRI?
5. Are there characteristics of children/families that moderate the impact of PAT on child or parent outcomes?
    a. What relations, if any, appear when data are analyzed to account for race, ethnicity, and other common demographic traits?

Data for the evaluation were provided the SC Office of First Steps, the South Carolina Department of Social Services, and the South Carolina Department of Education. The Department of Social Services provided socioeconomic data, while the Department of Education provided information regarding grade retention, special education identification (pre-kindergarten and kindergarten), and *mclass:CIRCLE* scores from the 2014-2015 school year. The SC Office of First Steps collected data for all families who participated in PAT between Fiscal Years 2008-09 and 2015-16 and provided data related to the program's implementation. PAT information about enrolled families included:

- PAT selection factors (e.g., student's gender, family size, income/ socioeconomic status, family risk characteristics, etc.)
- PAT services, visits, and participation
- Parent Keys to Interactive Parenting Scale (KIPS) collected before children entered kindergarten
- Adult-Child Interactive Reading Inventory (ACIRI) collected before children entered kindergarten

## Data Analysis and Presentation

Two types of analysis were employed in analyzing the evaluation data: descriptive and inferential. Descriptive analyses included frequency distributions and estimates of central tendencies (mean, median, etc.), and examination of sub-groups. Descriptive analyses were used to describe patterns in service patterns and outcomes across the state.

The second (inferential) type of analysis relied on statistical models such as analysis of variance (ANOVA), linear regression, and hierarchical linear modeling to test for program impact. Hierarchical linear modeling was used to examine outcomes (such as KIPS or ACIRI scores) with a nested research design (e.g., multiple time-points reported by each subject). The standard alpha level of .05 was used for the analyses, to determine statistical significance.

## Summary of Findings

### Implementation

Implementation was analyzed for several key aspects of program services: risk factors, retention, home visits, group meetings, child screenings, and referrals. In each case, and especially in the more recent years, Parents as Teachers programs are meeting if not exceeding South Carolina standards. This means that programs are providing services as required by National PAT, in dosages and formats that have been shown in to be correlated with program success. This finding also is consistent with South Carolina expectations to serve the most vulnerable children and families, or the children who may be at greatest risk for school readiness and poor academic performance. In particular, the following results are noteworthy:

- The most prevalent risk factors include SNAP and TANF eligibility, as well as mothers with less than a High School (or equivalent) education. By 2015-2016, ~81% of enrolled families had three or more risk factors.
- When factors are grouped into domains, the prevalence of risk is as follows.
  - 89% of cases had at least one **poverty** risk factor.
  - 53% of cases had at least one risk factor related to **low maternal education**.
  - 24% of cases had at least one risk related to **family stability, illness, or disability**

- 17% of cases had at least one risk related to **child developmental delays or health concerns**
- 10% of cases had at least one risk related to **abuse, neglect, or violence**; and
- 3% of cases had at least one risk related to **English as a Second Language**.

- When examined by risk domain, 51% of cases (n=2520) exhibited risks in two domains; 25% (n=1210) had risks in one domain; 20% (n=822) had risks in three domains; and 5% (n=229) had risks in four or five domains.
- As of 2015-2016, families are enrolled for an average of 21 months, or just under two years. Almost 61% of families maintained enrollment for 9 or more months and 32% of families maintained were enrolled for 2 or more years.
- Since 2009-2010, families have averaged 2 or more home visits per month.
- In 2015-2016, the percent of families that received 2 or more visits per month was 78%. Home visits routinely average 1 or more hours per visit.
- In the past three years, at least one group meeting has been offered each month. Over time, the percent of families attending at least one group meeting each year has grown from ~50% in 2009-2010 to ~63% in 2015-2016.
- Increasing percentages of children are receiving annual vision, hearing, and dental screenings.
- Since 2010-2011, most referrals have been issued for family-needs or events. The average number of referrals per family has risen to 4.1, in 2015-2016. The connection rate for referrals was greater than 93% in 2015-2016.

### *Adult Outcomes*

The PAT program model establishes that parenting knowledge and behaviors are direct targets for program services. Improvements in parenting knowledge and behaviors are the first indicators that the program is achieving its desired results. These outcomes were therefore an important component of the evaluation.

The evaluation focused on parenting practices and literacy behaviors. Data were available from two standardized assessments: the Keys to Interactive Parenting Scale and the Adult-Child Interactive Reading Inventory. Data supported an analysis of change in parenting practices and literacy behaviors over time. The resulting analyses found:

- There was significant and positive change over time in parenting practices, as assessed using the Keys to Interactive Parenting Scale (KIPS). As may be expected, parents with a greater number of risk factors had lower KIPS scores. There was a significant and positive association between program home visits and improvement in KIPS scores, such that a greater number of home visits was associated with increased KIPS scores. There appears to be a benefit to families to staying in the program for as long as possible, with the greatest increases in scores observed in the first and fourth years.

- There was significant and positive change over time in literacy behaviors, as assessed using the Adult-Child Interactive Reading Inventory (ACIRI), which captures data on both adult and child literacy. There were significant and positive changes in ACIRI scores that mirrored the trends established with KIPS scores. Namely, the greatest improvements in scores were observed in the first and fourth years, supporting the need for families to be served in the program over an extended time horizon.

### Child Outcomes

The PAT program model indicates that some of the earliest goals for children are to identify developmental trends (or delays), and to respond as appropriate (through referrals to more formal assessments and connections to community resources, for example). As noted above, over the program's history, increasing percentages of children received health and developmental screenings. In 2015-2016, for example, between seven and 12 percent of children were identified with developmental delays: 7.1% of children were identified with a delay in gross motor skills, 7.1% were identified with a delay in personal-social skills, 7.8% were identified with a delay in communication skills, 7.9% were identified with a delay in overall socio-emotional skills, 10.3% were identified with a delay in fine motor skills, and 11.6% were identified with a delay in problem-solving. Additional children were identified with potential delays, which also prompt a program response.

It is anticipated that, over time, through consistent participation in program services and active response in the form of improved parenting practices, there will be additional child-level benefits such that children served through Parents as Teachers perform on par or closely aligned with their less vulnerable peers. To examine these expectations further, the study first examined **grade retention** in kindergarten and found no statistically significant difference between PAT and non-PAT students. This suggests that participating, high-risk PAT students were sufficiently successful in kindergarten, so as to advance to the first grade along with their more advantaged peers. Specifically, 8.1% of the sample of non-PAT students (1978 of 24,473) were retained, compared to 10% (44 of 440) of PAT students. Also of interest, a higher proportion of male students were retained, compared to female students, and a higher proportion of SNAP-participating students were retained, compared to students who did not participate in SNAP.

The study also examined **special education identification** in 2014-2015 and 2015-2016. For the 2014-2015 school year, only prekindergarten students were examined. The study found that almost 16 percent of PAT students received special education placement, compared to almost 11 percent of

students who were not involved in PAT, likely reflecting the intervention's success in identifying developmentally-delayed children and connecting them to early intervention services. Also of interest:

- More than twice as many males received special education status, compared to females.
- Indian, White, and African-American students received the highest levels of special education identification.
- SNAP-participants were more likely to receive special education status.

There were significant gender, race, socioeconomic, and program (PAT) differences related to the odds of being identified for special education. More specifically, males had greater odds of being special education compared to females, white students had significantly smaller odds relative to all racial groups except Indian, students in poverty had greater odds than those not in poverty, and PAT students had greater odds of special education than non-PAT students.

In the 2015-2016 school year, special needs identification in both prekindergarten and kindergarten students was examined. For the prekindergarten students, the study found that PAT students did not have higher levels of special needs identification. However, among kindergarten students, a higher percentage of PAT students received special education status, compared to non-PAT students. In addition, the study found that gender, race, and poverty were significantly associated with identification for special education.

Finally, the study examined student performance on the **CIRLCE assessment**, a computer-based early childhood literacy assessment that was administered to all publicly-funded 4- and 5-year-old prekindergarten and kindergarten students in SC in the fall of 2014. Of interest for the current study were measures related to phonological awareness, letter naming, vocabulary, and observable behaviors related to literacy and socioemotional development.

For children assessed in their prekindergarten year, the study found that high-risk PAT and (less disadvantaged) non-PAT students had comparable outcomes; means of most measures were not significantly different. This is an important, positive finding for the program, suggesting that high-risk program participants – who might otherwise been expected to enter school at a disadvantage - are entering school on similar footing with more advantaged peers. For children assessed in their kindergarten year, there were significant mean differences between PAT and non-PAT children on most measures—however, groups differences were not large. The study also found, for both prekindergarten and kindergarten children, that female students had higher mean scores than male students and that there were differences associated with race (with Hispanic students consistently associated with lower mean scores compared to other racial groups).

## Implications

The evaluation was designed to assess South Carolina's PAT program in stages. First, the evaluation addressed the extent to which the program was faithfully implemented in accordance with both National PAT and South Carolina First Steps requirements. The results from this study indicate that this is indeed the case. Especially pertinent is the program's focus on highly vulnerable children and families—the program has worked over time to ensure that this high-risk population receives the bulk of program investments.

Next, the evaluation addressed the extent to which program investments are resulting in direct outcomes, which include changes in parenting practices (including literacy behaviors) as well as child-focused actions related to the identification of and response to developmental delays or needs. The study finds that the program is faithful in its screening for and response to child-level and developmental needs and that, over time, parents are exhibiting positive growth in parenting practices and literacy behaviors.

Finally, the evaluation addressed the extent to which the program is aligned with longer-term changes such as school readiness and academic success. A 2007 analysis by the SC Budget and Control Board's Office of Research and Statistics suggests that 1 in 3 South Carolina children with any of nine significant risk factors will be categorized into a category of "early school failure" (grade-level retention or bottom quartile of the state's standardized achievement test) by the third grade. Since that time, SC First Steps has used these risk factors to target the state's most at-risk children, for whom measurable performance gaps at school entry might otherwise be expected. This finding is consistent with the groundbreaking work of Betty Hart and Todd Risley, whose *Meaningful Differences in the Everyday Experience of Young American Children* documents a 30-million word gap in the language exposure of low-income children by age 3.

 The current analysis suggests that PAT children (and especially, prekindergarten children, who, for the years in which readiness data are available, represent a population with multiple risk factors) are successfully coming alongside their less vulnerable or less disadvantaged peers. For many vulnerable children, therefore, PAT services may be contributing to their ability to "hold their own" upon entering school.

Findings from the examination of parenting practices suggest that length of exposure or total time in the program may be associated with positive change. This supports program requirements to

serve parents and children for as long as possible (during the child's early childhood period).  Further, it is important to stress the program's importance in helping parents build strong "toolkits" of parenting skills and strategies, tools that help families become or maintain their resilience.  A strong toolkit and the core characteristic of family resilience will help parents guide and nurture their children not only at the point of school entry but throughout an academic career.

# Contents

# Figures

# Introduction and Background

South Carolina (SC) First Steps to School Readiness was the nation's third statewide early childhood initiative, following North Carolina and California, originally passed into SC law in 1999[5]. The purpose of the initiative, as stated in §59-152-20 of the S.C. Code of Laws, is to *"… develop, promote, and assist efforts of agencies, private providers, and public and private organizations and entities, at the state level and the community level, to collaborate and cooperate in order to focus and intensify services, assure the most efficient use of all available resources, and eliminate duplication of efforts to serve the needs of young children and their families…"* The initiative's goals are to[6]

- Provide parents with access to the support they might seek and want to strengthen their families and to promote the optimal development of their preschool children;
- Increase comprehensive services so children have reduced risk for major physical, developmental, and learning problems;
- Promote high quality preschool programs that provide a healthy environment that will promote normal growth and development;
- Provide services so all children receive the protection, nutrition, and health care needed to thrive in the early years of life so they arrive at school ready to learn; and
- Mobilize communities to focus efforts on providing enhanced services to support families and their young children so as to enable every child to reach school.

Forty-six counties in SC receive First Steps funding based on population-level risk factor data. Each county offers services through a local First Steps Partnership with its own governing board, which decides on the services that best fit the needs of their particular community.

In the fall of 2015, as directed by *Section 59-152-50(7)* of the of the S.C. Code of Laws requiring a schedule for evaluation of programs that comprise 10% or more of total programmatic spending, the Office of First Steps solicited an evaluation of school readiness for children of families who participated in the Parents as Teachers home visitation model prior to kindergarten entry in the fall of 2014.

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[5] South Carolina Education and Economic Development Act, SC Code §59-152-10
[6] SC Code §59-152-30

## Description of Parents as Teachers (PAT)

Parents as Teachers (PAT) is an evidence-supported parent education, family support, and school readiness home visiting model for at-risk families with children from 0 (prenatally) to 5 years of age. Trained and certified parent educators work with families using a comprehensive curriculum designed to ensure that their children are healthy, safe, and ready to learn. There are four core services, which include personal visits from PAT parent educators; monthly group meetings and playgroups; developmental, health, hearing, and vision screenings for children; and linkages with community resources.

| Figure 1. South Carolina counties with PAT programs | A majority of South Carolina counties have a Parents as Teachers program.  In most counties, the programs receive First Steps funding. |
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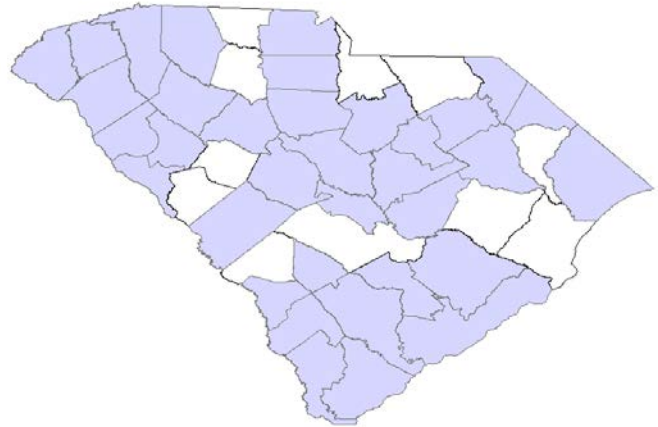


Parents as Teachers has established four goals for the program:

- Increase parent knowledge of early childhood development and improve parenting practices
- Provide early detection of developmental delays and health issues
- Prevent child abuse and neglect
- Increase children's school readiness and school success

At the time the Affordable Care Act was established, which included federal funding for Home Visitation models deemed Evidence-Based, PAT National was in the process of strengthening and deepening their model to ensure that it would maintain its integrity and fidelity within the Evidence-Based Home Visitation Models.  PAT established 17 Essential Requirements with associated measurement criteria that must be met to become and remain a PAT affiliate; these requirements facilitate the rigor and consistency of program implementation across affiliates. The requirements address minimum expectations for parent educator qualifications, personal home visits, child screenings, group connections, and resource networks (Appendix A).  PAT affiliates submit annual reports to National PAT documenting their adherence to the requirements.  In return, National PAT

provides guidance and support for affiliates in program implementation, especially in areas where an affiliate may be struggling to meet implementation standards.

## Program Logic

Figure 2 presents the National Parents as Teachers logic model.  As can be seen, the program is grounded in theories about what works for family functioning and resilience.  The program also is grounded in beliefs about the importance of parents and parenting, and the need to focus on early childhood as a critical period in development, which sets the stage for later patterns of growth and success.

As noted above, the program has four core components.  Through faithful implementation of these components as well as a focus on (a) parent-child interactions, (b) development-centered parenting, and (c) family well-being, the program promotes positive change in birth outcomes, parent knowledge, parenting capacity and practices, parent-child interactions, family health and functioning, and identification of child-level developmental needs.  Through these short-term (or, direct) outcomes, the program aims to address longer-term changes such as school readiness and thriving families.

In South Carolina, the program focuses on highly vulnerable families, or families with multiple risk factors, with the goal of helping vulnerable families develop their strengths, realize positive changes in parenting and family well-being, and, ultimately, experience long-term and positive child and family outcomes.

**Figure 2. Parents as Teachers Logic Model** | The Parents as Teachers Logic Model establishes the program's logic, or blueprint for change.

## Inputs

### Core Values

> The early years of a child's life are critical for optimal development and provide the foundation for success in school and in life.

> Parents are their children's first and most influential teachers.

> Established and emerging research is the foundation of our curricula, training, materials and services.

> All young children and their families deserve the same opportunities to succeed, regardless of any demographic, geographic, or economic considerations.

> An understanding and appreciation of the history and traditions of diverse cultures is essential in serving families.

### Theoretical Framework

> Human Ecology and Family Systems
> Developmental Parenting
> Attribution Theory
> Empowerment and Self-Efficacy

### Community Context

> Community needs and relationships
> Organizational capacity
> Well-trained and competent staff

*Reflective Supervision*

## Activities

### Training and Professional Development

Initial training and ongoing professional development build parent educators' core competencies in the following areas:

> Family Support and Parenting Education
> Child and Family Development
> Human Diversity Within Family Systems
> Health, Safety, and Nutrition
> Relationships Between Families and Communities

### Model Components

> Personal Visits
> Group Connections
> Screening
> Resource Network

### Approach

Parent educators share research-based information and utilize evidence-based practices by partnering, facilitating, and reflecting with families.

Parent educators use the Parents as Teachers *Foundational Curriculum* in culturally sensitive ways to deliver services that emphasize:

**Parent-Child Interaction**
> Parenting behaviors
> Child development
> Parent-child activities

**Development-Centered Parenting**
> Link between child development and parenting
> Developmental topics (attachment, discipline, health, nutrition, safety, sleep, transitions/routines, and healthy births)

**Family Well-Being**
> Family strengths, capabilities, and skills
> Protective factors based on the Strengthening Families™ approach
> Resourcing

### Fidelity and Quality Assurance

> Readiness Reflection
> Quality Assurance Guidelines
> Essential Requirements
> Model Implementation Training and Guide

*Evaluation and Continuous Quality Improvement*

## Outcomes

### Short-Term Outcomes

Increase in healthy pregnancies and improved birth outcomes (when services are delivered prenatally)

Increase in parents' knowledge of their child's emerging development and age-appropriate child development

> Parents are knowledgeable about their child's current and emerging language, intellectual, social-emotional, and motor development
> Parents recognize their child's developmental strengths and possible delays
> Parents are familiar with key messages about healthy births, attachment, discipline, health, nutrition, safety, sleep, and transitions/routines

Improved parenting capacity, parenting practices, and parent-child relationships

> Parents understand that a child's development influences parenting responses
> Parents display more literacy and language promoting behaviors
> Parents demonstrate positive parenting skills, including nurturing and responsive parenting behaviors and positive discipline techniques
> Parents show increased frequency, duration, and quality of parent-child interactions

Early detection of developmental delays and health issues

> Children will have increased identification and referral to services for possible delays and vision/hearing/health issues

Improved family health and functioning

> Improved quality of home environment
> Families link with other families and build social connections
> Parents are more resilient and less stressed
> Parents are empowered to identify and utilize resources and achieve family and child goals
> Families are connected to concrete support in times of need

### Intermediate Outcomes

Improved child health and development

Prevention of child abuse and neglect

Increased school readiness

Increased parent involvement in children's care and education

### Long-Term Outcomes

Strong communities, thriving families, and children who are healthy, safe, and ready to learn

## PAT in South Carolina

In 1989, SC's General Assembly enacted legislation known as Target 2000: School Reform for the Next Decade, which required the SC Department of Education to provide parent education that supported parents in their role as the principal teachers of their children from birth through five. The legislation specifically required "intensive and special efforts to recruit parents or guardians who children were at risk for school failure." In 1993, the parent education program was amended with the passage of Act 135, "the Early Childhood Development and Academic Assistance Act," to include a requirement for districts to provide developmental screening and opportunities for parents to improve their education.

Under Act 135 state legislated funding was allocated through the SC Department of Education to all school districts to provide Family Literacy Services to qualifying parents. Family literacy services were based on the Federal Even Start Model, which provided four components of services to qualifying families through their local elementary school districts. The target population was parents of young children prenatal or birth- age 5 who were in need of Adult Education (GED).  The four components included: Adult Education--GED class enrollment for parent; Child Care Service for the child—a half day at the school site where the parent received Adult Education; Parent and Child Interaction Time—at least one hour a week with the parent interacting with their child in their classroom around planned literacy activities; and Parent Home Visitation and/or Parent Education Services—focused on building appropriate parenting skills. Because state funding was not adequate to provide all four components Even Start, First Steps collaborated with almost all SC counties to help fund the Home Visitation/Parent Education component of the model, which was implemented as PAT.  PAT programs were offered through local First Step partnerships, or local elementary schools.  Programs targeted at-risk children and families, although the PAT model allows for parents and children from any socio-economic status or conditions to be served.

A few years later, during the period of 2007-10, state PAT outcome measures were established and the Keys to Interactive Parenting Scale (KIPS), a parenting behavior assessment, and the Adult Child Interactive Reading Inventory (ACIRI), a literacy assessment conducted with both the adult and the child, measures were adopted and incorporated in every partnership who was providing PAT and other Home Visitation models. Improvements also were made to the First Steps Data Collection System, which was expanded to collect client information and data around the PAT model and the new outcome measures for KIPS and ACIRI. At the same time, First Steps developed a set of standards to capture fidelity to the

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PAT model and best practices in the area of Home Visitation.  First Steps also began to monitor PAT

programs that received First Steps funding to ensure the program was implemented as designed. In

2011, First Steps was designated as the State Office for PAT National in SC, acknowledging that First

Steps had already established and was implementing standards around the model.   The partnership and

program accountability standards established by First Steps address the following areas for PAT

enrollment, implementation, and staff (Appendix B contains the full set of First Steps' standards):

- Targeting
  a) Targeting Clients At-Risk Of Early School Failure
  b) Targeting By Age (Early Intervention)
  c) Client Retention

- Service Delivery—Fidelity to a published, research-based model related to:
  a) Home Visit Intensity and Delivery
  b) Group Connections
  c) Screenings and Referrals
  d) Family Assessment and Goal Setting
  e) Integrated Service Delivery
  f) Staff Qualifications and Training
  g) Ongoing Program Quality Assessment

- Assessment and Data Submission
  a) Keys to Interactive Parenting Scale (KIPS)
  b) Adult-Child Interactive Reading Inventory (ACIRI)
  c) First Steps Data Collection System (FSDC)

As the PAT State Office, SC First Steps supports a State Leader to provide technical assistance and

training to each of the state's affiliate PAT programs, which are funded both by First Steps as well as

other sources. PAT has and continues to be one of the largest investments of First Steps since the

agency's inception and is the largest home visiting model implemented in the state.

## Methods

### Purpose of the Evaluation

The current study addressed both program implementation and program achievements.

The first part of the evaluation was formative in nature and designed to assess whether the

program was implemented as intended between Fiscal Years 2008-09 and 2015-16 and met the

standards set out for PAT in South Carolina. The current evaluation focused on those standards that

more specifically address child outcomes (e.g., targeting at-risk populations, retention of clients in

the program, home visits, etc.) rather than standards related to monitoring program functions (e.g., staff qualifications, reporting and parent educator supervision, FSDC, etc.)[7].

The second part of the evaluation included summative elements involving parent and child outcomes, as described in the following evaluation questions:

1. **What is the relationship between exposure to PAT between the ages of 0-3 years and children's Pre-K or Kindergarten readiness outcomes?**
   a. How do child outcomes as measured by CIRCLE and grade retention vary when controlling for total months or years of enrollment? Total number of visits completed?
   b. If there is variation, what is the minimal level of exposure that appears to be necessary to achieve meaningful child outcomes as measured by CIRCLE scores and grade retention? Is this level consistent with PAT and SC expectations for program implementation?
   c. Are children with scores on ASQ/ASQ:SE indicating delays or potential delays more likely to receive special education services in pre-kindergarten or kindergarten?
2. **What is the relationship between exposure to PAT and parenting outcomes as measured by KIPS/ACIRI?**
   a. How do outcomes vary when controlling for total months or years of enrollment? Total number of visits completed?
   b. What is the minimal level of exposure that appears to be necessary to achieve meaningful parenting outcomes? Is this level consistent with PAT and SC expectations for program implementation?
3. **What is the relationship between parenting outcomes as measured by KIPS/ACIRI and children's Pre-K or Kindergarten readiness outcomes as measured by CIRCLE scores and grade retention?**
   a. Does a particular threshold level (or criterion-reference) in parenting appear to be related to child outcomes?
   b. Are gains in parenting associated with gains in child developmental progress or outcomes?
4. **What is the relationship between exposure to PAT and interactive literacy as measured by KIPS/ACIRI?**
5. **Are there characteristics of children/families that moderate the impact of PAT on child or parent outcomes?**
   a. What relations, if any, appear when data are analyzed to account for race, ethnicity, and other common demographic traits?

> A "moderator" is a characteristic or trait of a participating child or family that affects how well they receive or respond to a program.

## Data Sources

Data for the evaluation were provided the SC Office of First Steps, the South Carolina Department of Social Services, and the South Carolina Department of Education. The SC Office of First

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[7] Note as well that National PAT standards have changed in the eight years between 2008-09 and 2015-16. Thus, program monitoring elements varied over time to accommodate the changing standards.

Steps collects data for all families who participated in PAT between Fiscal Years 2008-09 and 2015-16 provided data related to PAT services. Data for enrolled families included:

- PAT selection factors (e.g., student's gender, family size, income/ socioeconomic status, family risk characteristics, etc.)
- PAT services, visits, and participation
- Parent Keys to Interactive Parenting Scale (KIPS) collected before children entered kindergarten
- Adult-Child Interactive Reading Inventory (ACIRI) collected before children entered kindergarten

## Instruments

### Keys to Interactive Parenting Scale (KIPS)

The Parents as Teachers program utilizes the Keys to Interactive Parenting Scale (KIPS). The KIPS is a valid and reliable five-point scale used for assessing parent and child interactions, in areas such as (a) sensitivity of parent responses to child; (b) physical interaction with child; and (c) reasonable expectations for child.

### Adult Child Interactive Reading Inventory (ACIRI)

The Parents as Teachers program also uses the Adult Child Interactive Reading Inventory (ACIRI) to capture changes in parenting and literacy behaviors as outcomes. The ACIRI is a valid and reliable four-point scale that measures the interactive reading behaviors of adults with children. The instrument is used to assess behaviors such as (a) proximity between adult and child while reading; (b) using questions during the reading session; and (c) asking child to recall information.

### CIRCLE

CIRCLE is a valid, research-based, tool for measuring and monitoring early literacy skills in young children. The assessment was administered to all publicly funded 4- and 5-year-old students entering prekindergarten or kindergarten in South Carolina in the fall of 2014. Grade level retention and CIRCLE scores are the outcome measures used for evaluating children's school readiness.

Additional data associated with school readiness were received from the SC Department of Social Services and the SC Department of Education for both children and families participating and not participating in PAT. These data were used for addressing the evaluation questions related to school readiness and included:

- Grade-level retention, English language proficiency, special education identification, race/ethnicity
- Medicaid qualification category
- Supplemental Nutrition Assistance Program (SNAP) and Temporary Aid To Needy Families (TANF) qualification

- CIRCLE assessment scores

## Data Analysis

The evaluation team used a two-stage analytic approach.  The first stage was a descriptive review of data, which included the calculation of various descriptive statistics (e.g., frequencies and cross-tabulations for nominal variables and means, standard deviations, medians, etc. for quantitative variables).  In this stage, the team also visually examined the data using plots such as histograms, bar charts, and QQ-plots[8].   Specific data management techniques included:

- Identification and treatment of outliers.  The data were inspected for outliers (using data visualization tools such as histograms, bar charts, and scatterplots) but no responses were removed because the data did not show signs of problematic invalid responses on the outcome variables (e.g., data entry errors).
- Identification and treatment of missing data.  Missing data were identified on a case-by-case basis. No imputation methods were applied; all analyses were based on available data.
- Data coding or recoding.  Categorical variables (e.g., race, gender, etc.) were coded using reference, or "dummy", coding.
- Software.  SAS version 9.3 and SPSS version 18 were used to conduct statistical analyses. ESRI ArcMap version 10.4.1 was used to generate Geographic Information Systems maps.
- Creation or new or composite variables.  No new composite-type outcome variables were created. For the KIPS and ACIRI, "time" variables were created to translate a point in time (expressed as month/day/year) for an assessment or observation into a time period (such as year 1, year 2, etc.).

The second stage in data analysis was the application of statistical models such as analysis of variance (ANOVA), linear regression, and hierarchical linear modeling to test for program impact. Hierarchical linear modeling is becoming a standard technique for examining complex treatment effects in education and social services.  In brief, this technique allows the examination of outcomes (such as KIPS or ACIRI scores), while also taking into consideration nested research designs (e.g., multiple time-points reported by each subject). The standard alpha level of .05 was used for the analyses, to determine statistical significance. However, it is important to note that large sample sizes result in high statistical power. As a result, statistically significant results may not be clinically meaningful. This suggests that mean differences could be "significant" but trivial in magnitude.

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[8] There were numerous cases of duplicate data entries, across datasets, related to the configuration and extraction of data from the state's data system. For these cases, only a single entry was retained and used for analyses. Also, there were aspects of the data that were indicative of potential problems with data quality (e.g., missing dates, different sample sizes across data sets, duplicate entries, etc.).  We recommend the client closely examine their data collection processes and database system for accuracy and reliability.

## Implementation

The standards established for PAT in 2013-14 were used for the current evaluation because that is the year in which the CIRCLE school readiness assessment was administered. These data are used along with grade retention in kindergarten as measures of child outcomes.

As noted earlier, SC First Steps requires programs to meet standards for implementation fidelity. Standards that directly address program participation and exposure were used in the evaluation of PAT implementation, with figures displaying the primary findings for each standard and more detailed tables contained in Appendix C.

Client enrollment standards were developed to ensure that the most at-risk population is served and that they participate to the degree needed to receive the greatest benefit from services. Service delivery standards, based on PAT's 17 Essential Requirements, address the minimum level of service needed for achieving the best outcomes possible. More specifically, the standards include:

- Client Enrollment
  - At least 60% of clients shall possess two (2) or more readiness risk factors, with 100% of client families possessing at least one risk factor.
  - Retention of 75% of home visitation clients across nine or more months of program participation and at least two full years of service to eligible families.
- Service Delivery
  - Clients receive no less than 2 visits monthly lasting at least 45 minutes.
  - At least one parent education group meeting is offered each month (per vendor or area of service if large program) for a total of 12 per program year.
  - Parenting vendors shall complete all model-related health and developmental screenings to include hearing, vision, use of milestone checklists, dental checks, etc.
  - Vendors shall seek to ensure that each participating client family is connected with a pediatric medical home and other community services as appropriate.
  - Each client child shall be assessed using an age-appropriate developmental screening tool (e.g. Ages & Stages 3, Ages and Stages SE, Brigance, DIAL-3, etc.).
  - Partnerships and their funded vendors shall ensure active collaboration with other parenting and family support services in their communities, refer families to these services as necessary, and follow up as feasible to ensure that appropriate connections have been established.
  - Vendors shall complete, at minimum, baseline and post assessments of the primary adult client identified within each enrolled case using the Keys to Interactive Parenting Scale (KIPS).
  - Each family containing children aged 2½ - 5 shall have their interactive literacy behaviors assessed by a trained evaluator using the Adult-Child Interactive Reading Inventory (ACIRI).

## Client Enrollment

The total families served across all PAT locations ranged from almost 1,005 (in 2015-16) to

almost 1,400 (in 2009-2010) (Figure 3). It is important to note that cases may be duplicated across years. This is to say, a family may be enrolled for two or more years, and therefore is counted in each year's enrollment figures.

| Figure 3. Total family enrollment from 2008-09 to 2015-16 | The total families served from 2008-09 to 2015-16 ranged from 1005 (in 2015-16) to 1392 (in 2009-10). |
| --- | --- |
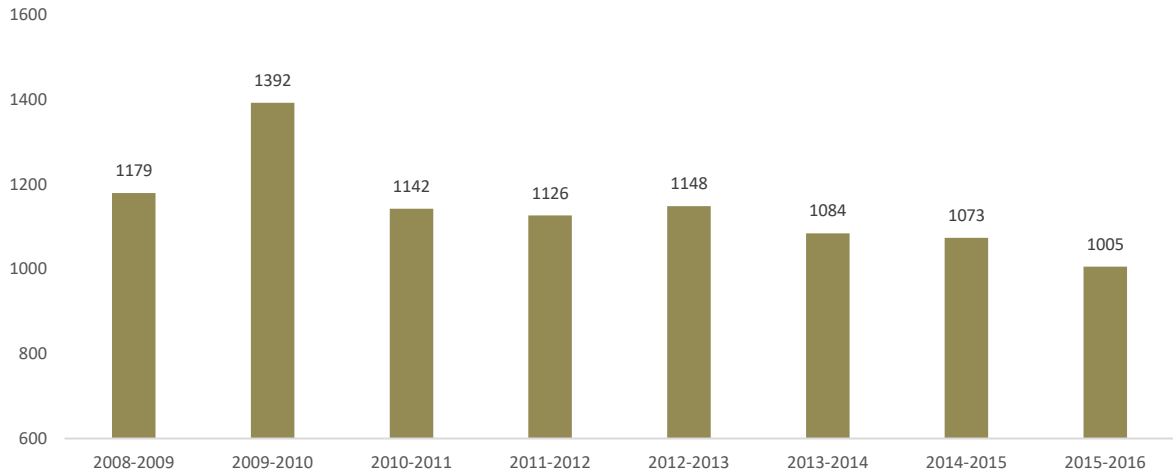


## Risk Factors

National PAT has 14 risk factors to use in recruiting and enrolling families (see Appendix B). These risk factors are grounded in research that examines influences on child development and success[9]. The program's approach is to seek

> **South Carolina's First Steps standard:**
> At least 60% of home visitation clients shall be identified on the basis of two (2) or more readiness risk factors (with 100% of client families possessing at least one risk factor at the time of enrollment).

out and enroll children or families that exhibit two or more risk factors, in an effort to find and serve children most at-risk for school readiness. Individual affiliates may consider additional risk factors[10]. However, the risk factors identified by First Steps are the primary risk factors to be considered when recruiting and enrollment children and families.

SC PAT enrollment data for 2008-09 through 2015-16 were analyzed to determine which, if any, risk factors were more prevalent or common among the enrolled population. It is important to keep in

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[9] See, for example, Evans et.al, (2013) discussion of cumulative risk, where the authors cite gender, income, parental education, single parent household, teenage parenthood, and non-White ethnicity as common risk factors, along with total life events, violence, family conflict, child separation from family, harsh and/or unresponsive parenting, parental psychological distress, substandard housing, residential crowding, and noise. Evans, G.W., Li, D. and Whipple, S.S. (2013). Cumulative risk and child development. *Psychological Bulletin*, 139 (6), 1342-1396.

[10] For example, National PAT includes military family as a risk factor, which is not included in South Carolina's list.

mind that a child or family can have multiple risk factors.

As can be seen in Figure 4, the most prevalent risk factors across all years include eligibility for TANF and SNAP services, followed by mothers having less than a high school diploma, the custodial parent being a teenager, a preschool child exposed to caregiver depression, and domestic violence. The least prevalent risk factors depicted in Figure 5 include a preschool child placed in foster care, referred for neglect, referred for abuse, and exposed to substance abuse, respectively.

| Figure 4. Most prevalent risk factors | The most prevalent risk factors include SNAP and TANF eligibility, as well as mothers with less than a High School (or equivalent) education.  Note that many individual risk factors may be correlated. |
|---|---|



Legend:
- SNAP Eligible
- TANF Eligible
- Mother < HS grad
- Teen Custodial Parent
- Exposed to caregiver depression
- Domestic Violence
- Pre-K aged child with developmental delay
- IDEA Part C or Part B Eligible
- Low Birth Weight[1] and/ or serious medical complications
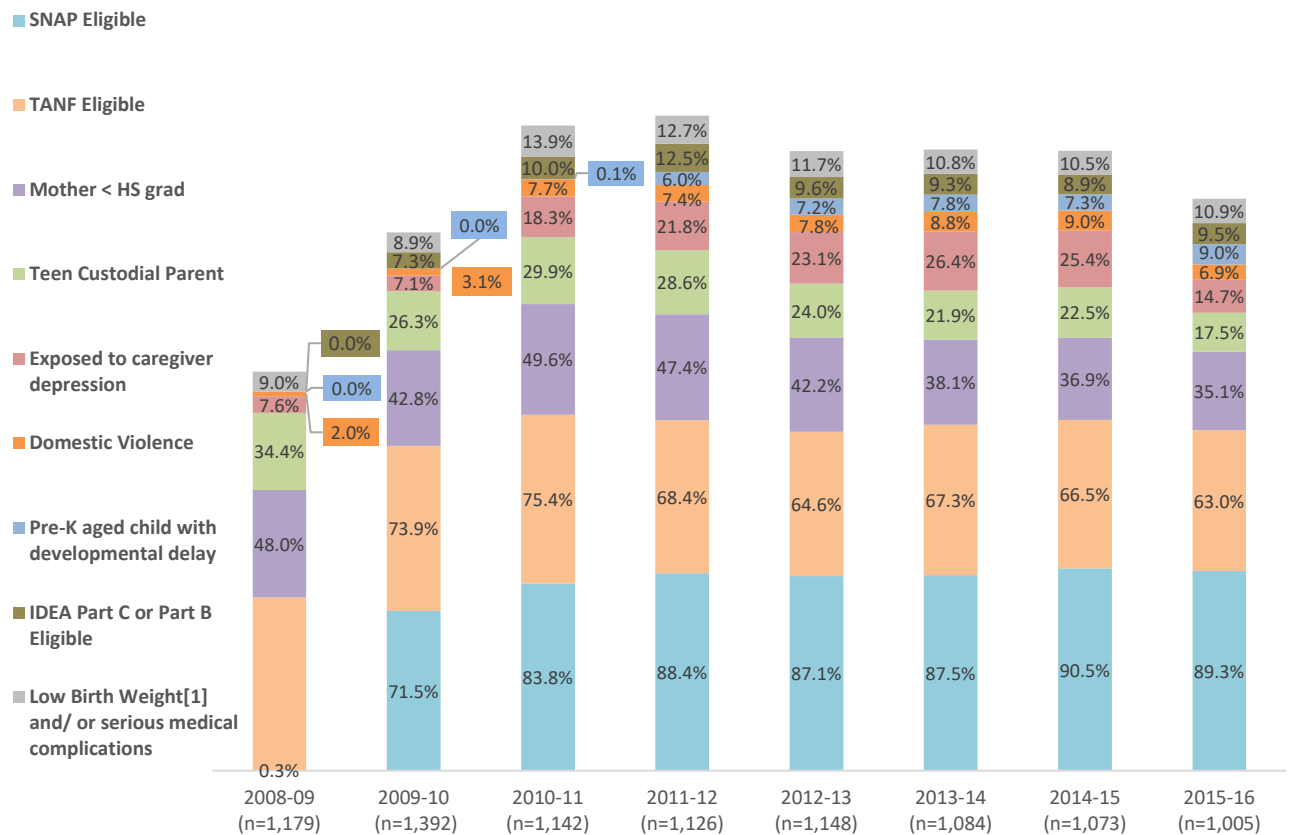
| Figure 5. Least prevalent risk factors | The least prevalent risk factors include domestic violence, caregiver disabilities, or abuse/neglect. |
| --- | --- |
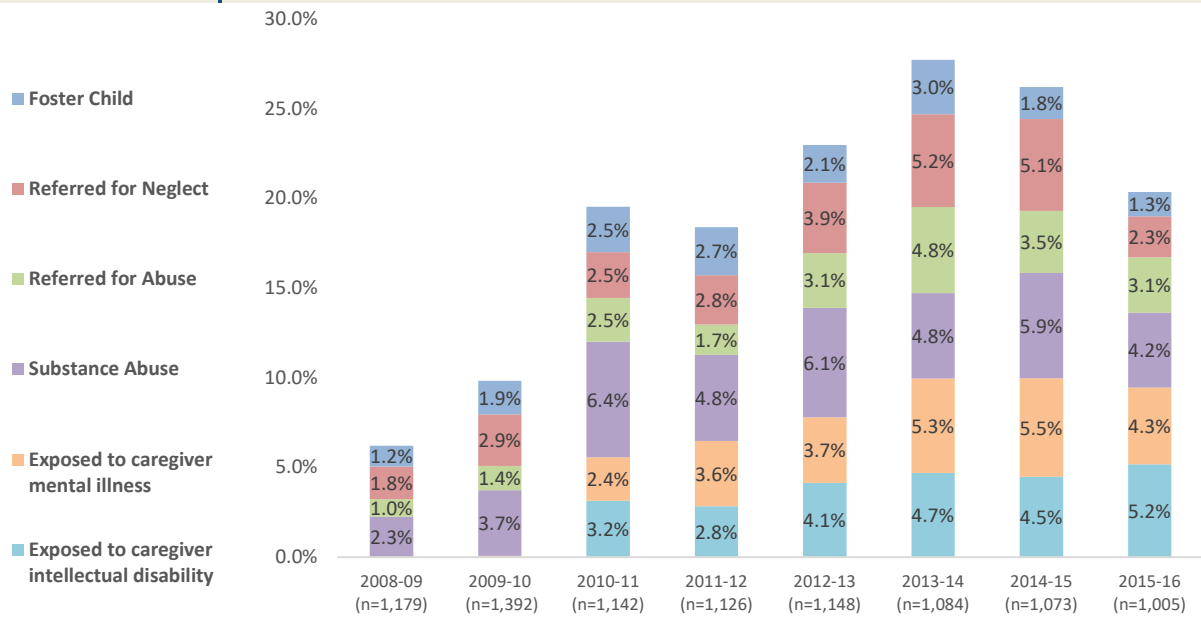


The risk factors used by National PAT and SC First Steps represent several risk domains, which can be used to categorize and further analyze the prevalence of risk in the PAT population. For the current project, the identified risk domains and contributing risk factors are presented in Figure 6.

| Figure 6. Risk Domains and Factors | This figure presents the grouping of risk factors into risk domains, for the current evaluation. |
| --- | --- |

| Risk Domain | Risk Factors |
| --- | --- |
| Poverty | • TANF Eligible<br>• SNAP Eligible |
| Developmental delay or health concern | • IDEA Part C or Part B Eligible<br>• Low Birth Weight and/ or serious medical complications<br>• Pre-K aged child with developmental delay |
| Abuse/ neglect/ violence | • Referred for Abuse<br>• Referred for Neglect<br>• Foster Child<br>• Domestic Violence |
| Low maternal education | • Teen Custodial Parent<br>• Mother < HS grad |
| Family stability, illness, or disability | • Substance Abuse<br>• Exposed to caregiver depression<br>• Exposed to caregiver mental illness<br>• Exposed to caregiver intellectual disability<br>• Single Parent<br>• Transient |
| English as a Second Language | • Does not speak English |

When factors are grouped into domains, the prevalence of risk is as follows. Eighty-eight percent (89%; n=4365) of (unique) cases had at least one poverty risk factor. Fifty-three percent (n=2612) had at least one risk factor related to low maternal education. Further: 24% (n=1192) had at least one risk related to family stability, illness, or disability; 17% (n=837) had at least one risk related to child developmental delays or health concerns; 10% (n=497) had at least one risk related to abuse, neglect, or violence; and 3% (n=162) had at least one risk related to English as a Second Language.

When examined by risk domain, 51% of cases (n=2520) exhibited risks in two domains; 25% (n=1210) had risks in one domain; 20% (n=822) had risks in three domains; and 5% (n=229) had risks in four or five domains.

Overall, the data indicate that PAT programs in SC are successfully targeting high-risk families for participation, with 100% of those enrolled since 2010-11 possessing at least one risk factor and the majority (more than 65%) with three or more. Furthermore, as shown in Figure 7, the percent of families with three or more risk factors has increased steadily from just under 27% in 2008-09 to more than 80% in 2015-16.

| Figure 7. Percent of cases with 0, 1, 2, or 3 risk factors | By 2015-2016, ~81% of enrolled families had three or more risk factors. |
|---|---|



Figure 7. Percent of cases with 0, 1, 2, or 3 risk factors

■ Cases with 0 risks   ■ Cases with 1 risk   ■ Cases with 2 risks   ■ Cases with 3+ risks
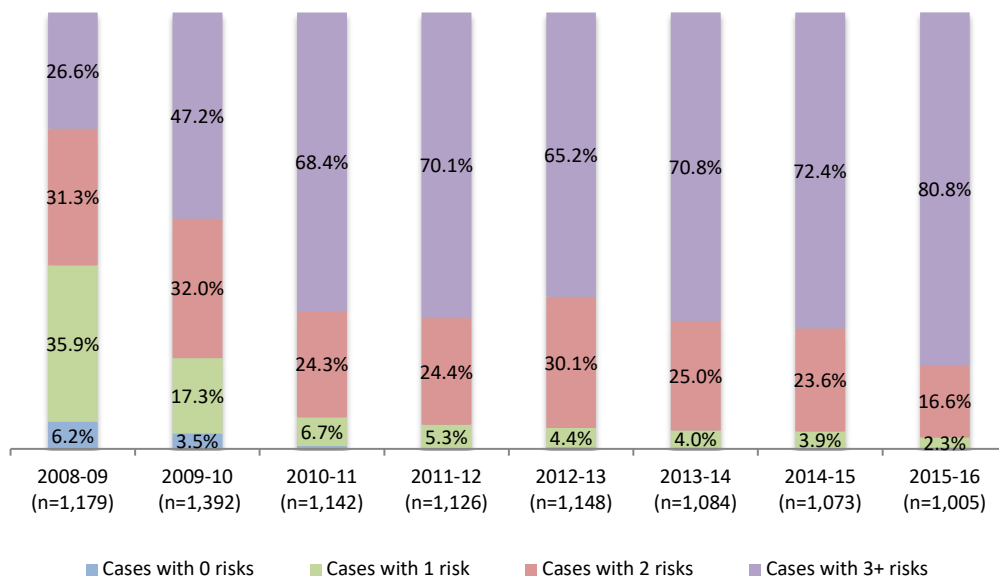
## Retention

Client retention refers to the length of time that enrolled children and families receive PAT services, with the expectation that longer exposure to services will result in stronger results for children and families.  PAT is designed to be implemented as a year-round program. However, this may be affected by the nature of the organization providing the program. Elementary school staff, for example, typically provides services during the nine-month school year.  In these cases, the PAT program would be offered only during these months of operation.

A child's and family's enrollment can last more than one year.  In fact, this is the preferred circumstance, as expressed by National PAT.  Therefore, PAT programs seek out families with children ages birth through three (and often enroll parents while pregnant), in order to maximize services.

Retention across time can be challenging for some highly vulnerable families.  As depicted in Figure 8, McGuigan et.al. (2003)[11] identified multiple factors that might affect program retention, including maternal factors (such as mother age and ethnicity), parent educator factors (such as hours of monthly supervision), and community factors such as community violence[12].

| Figure 8. McGuigan et.al. (2003) model for understanding program retention | Client retention depends on family, home visitor, and community factors. |
|---|---|



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[11] McGuigan, W.M., Katzev, A.R., and Pratt, C.C. (2003). Multi-level determinants of retention in a home-visiting child abuse prevention program. *Child Abuse & Neglect,* 27, 363-380.

12 More specifically, in their study (Ibid), the authors found that a one-unit increase in community violence was associated with a 13% reduction that mothers would stay in the home visitation program for 1 year. Similarly, a one-hour increase in monthly supervision raised the likelihood of retention by 89%; Hispanic mothers were more likely to remain in the program for 1 year or longer (compared to non-Hispanic mothers), and older mothers were more likely to remain (with a 4% increase in retention or each year of age).  Such findings underscore the importance of practices such as mentoring and supervision for parent educators.

Daro et.al. (2003)[13] also examined challenges related to recruitment and retention of new parents in Healthy Families America programs and found that older participants, unemployed participants, and participants who enrolled in a program earlier in their pregnancy tended to remain in services longer and to complete more home visits.  Further, African-American and Hispanic participants were more likely to stay in services; African-American participants tended to complete more home visits.  Participant enrollment in school was associated with service duration but not the number of completed home visits.  The authors concluded:

> New parents who are actively working to improve their status, as evidenced by enrolling in school and accepting services early in their pregnancy, may represent a population particularly attracted to prevention services and one which prevention services are well positioned to assist.

The authors also found that factors associated with parent educators could affect service duration.  For example, African-American staff, who tended to be younger but also were experienced in delivering services, were successful at helping participants stay in the program.  Also, younger staff were able to complete more home visits with participants.   The authors found that low caseloads contributed to service duration and completed home visits as did staffing that was reflective of the target population (especially with regard to parenting status, race, or ethnicity).  In sum:

> While the success of a given provider most certainly rests partially within the individuals themselves, performance also may be influenced by organizational context. The differing emphasis programs placed on "matching" provider and participant may be illustrative of a broader difference in organizational culture among home visitation programs. Program managers that structure their workforce to increase the odds that their participants will be served by a home visitor that is herself a parent and sharing a similar racial/ethnic identity may create a service context more compatible to the decision-making styles and parenting practices of the local community. This integration between local culture and service delivery may play an important role in retaining families in service.

As can be seen in Figure 9, the average cumulative number of months that clients remain in PAT has increased over time.  In addition, although falling somewhat short of the 75% standard set by First Steps, the percentage of families remaining enrolled for at least 9 months, since that time has remained fairly stable (Figure 10).

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[13] Daro, D., McCurdy, K., Falconnier, L., and Stojanovic, D. (2003).  Sustaining new parents in home visitation services: key participant and program factors.  *Child Abuse & Neglect*, 27, 1101-1125.

| Figure 9. Average number of months enrolled | As of 2015-2016, families are enrolled for an average cumulative of 20.8 months. |
|---|---|



Figure showing average number of months enrolled:
- 2008-09 (n=9): 9.7
- 2009-10 (n=1383): 7.4
- 2010-11 (n=1135): 12.0
- 2011-12 (n=1124): 14.2
- 2012-13 (n=1144): 17.0
- 2013-14 (n=1081): 18.6
- 2014-15 (n=1072): 19.3
- 2015-16 (n=1004): 20.8
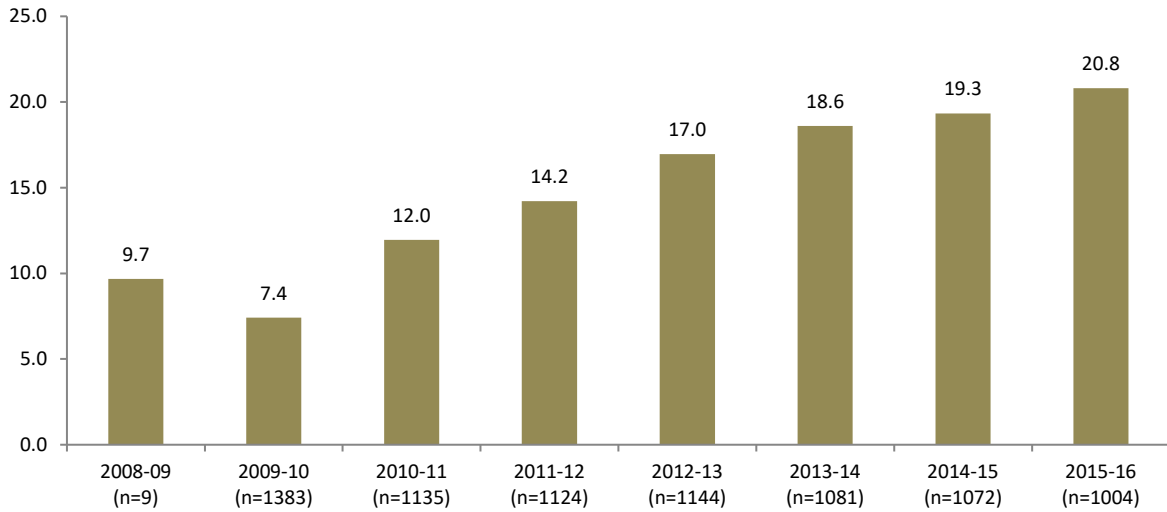
| Figure 10. Percent of families enrolled for 9 or more months | As of 2015-2016, 61% of families maintained enrollment for 9 or more months. |
|---|---|



Figure showing percent of families enrolled for 9 or more months:
- 2009-10 (n=1,383): 44.9%
- 2010-11 (n=1,130): 51.5%
- 2011-12 (n=1,124): 54.4%
- 2012-13 (n=1,139): 59.4%
- 2013-14 (n=1,075): 64.4%
- 2014-15 (n=1,067): 59.0%
- 2015-16 (n=1,002): 61.0%
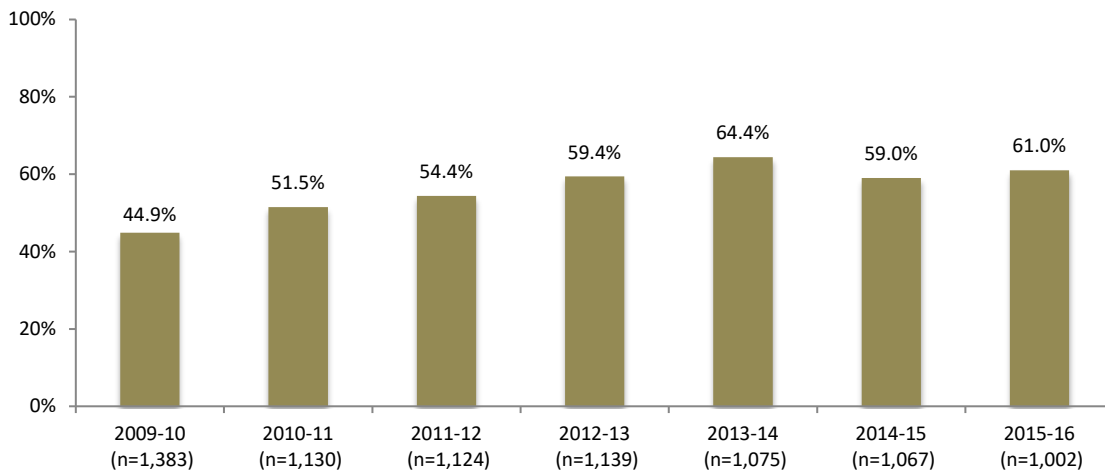
Finally, as shown in Figure 11, the percent of families remaining enrolled for two years or more increased from less than 1% in 2010-11, the first year in which families could have been enrolled for 2 years, to 32% in 2015-16. The steadily increasing percentages of families remaining enrolled for more

than one year is encouraging, especially given the challenges of serving highly vulnerable populations[14].

| Figure 11. Percent of families enrolled for 2 or more years | As of 2015-2016, 32% of families maintained enrollment for 2 or more years. |
|---|---|



Figure 11 bar chart:

- 2009-10 (n=1,383): 0.1%
- 2010-11 (n=1,130): 5.3%
- 2011-12 (n=1,124): 20.1%
- 2012-13 (n=1,139): 23.7%
- 2013-14 (n=1,075): 28.9%
- 2014-15 (n=1,067): 31.2%
- 2015-16 (n=1,002): 32.2%
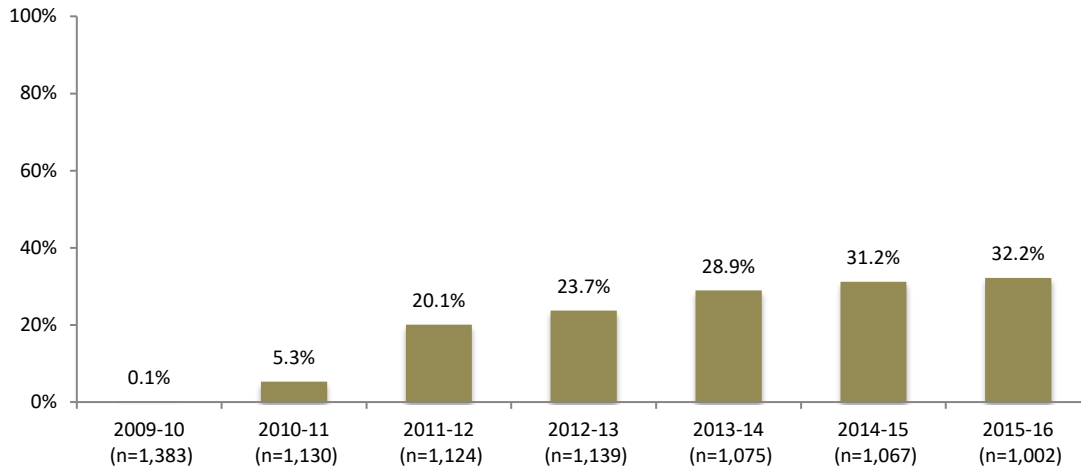
## Delivery of Services

**Home Visits**

The home visit is the cornerstone of PAT services. Through the home visit, the parent educator gets to know the child and family, identifies a family's strengths, and works with the family to create goals and access resources, including the direct education that occurs during the home visit. Because there is an ongoing relationship, parent educators can follow-up with families on prior referrals and can assist families in overcoming challenges.

> **South Carolina's First Steps standards:** Programs shall match the intensity of their service delivery to the specific needs of each family, with no client to receive less than 2 visits monthly. Clients identified as possessing two (2) or more board-approved risk factors shall receive home visitation up to weekly as the needs and availability of the family dictate.

Figure 12 shows that beginning in 2010-11 through 2015-16, the number of homes visits averaged more than two per month. This demonstrates the number of homes visits was greater than the minimum required by First Steps standards.

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[14] Note: Computations related to client retention, home visits, and group visits were not possible for all families due to missing data and other data concern. There were only 9 cases with data of sufficient quality were available in 2008-09 to calculate enrollment durations. Therefore, 2008-09 is excluded from the figures in the remainder of the report.

| Figure 12. Average home visits per family, per month | Since 2009-2010, families have averaged 2 or more home visits per month. |
|---|---|
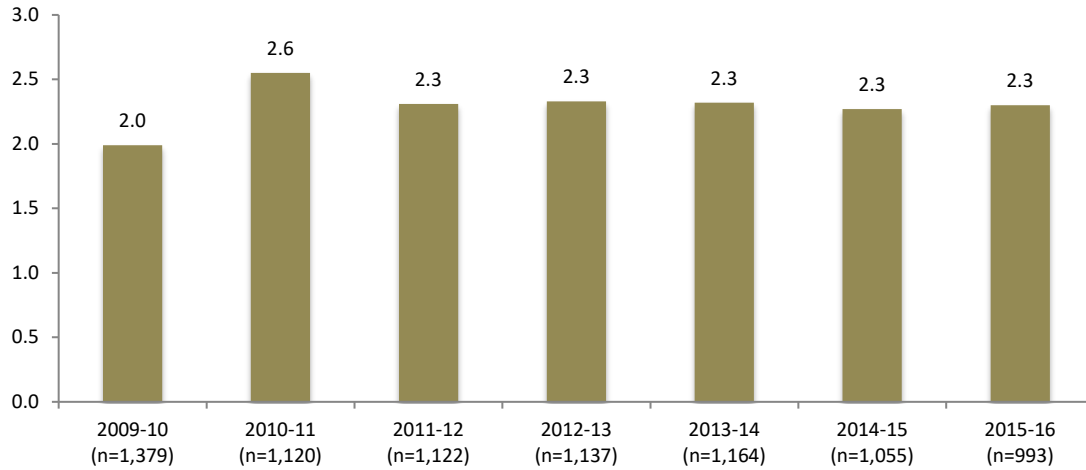


Figure 13 presents the total number of home visits provided; as can be expected, aggregate counts rise or fall with enrollment figures (from 2009-2010 through 2015-2016).  However, the average number of home visits received by families, annually, ranged from 18 to 20 since 2010-2011.  Since many PAT programs operate on a 9-month schedule, these data reinforce that families (in aggregate) are receiving, on average, two or more home visits for each month of enrollment.

| Figure 13. Total and average annual home visits | Total home visits fell in 2015-2016, due to lower overall enrollment.  However, families experienced a relatively high average number of home visits. |
|---|---|
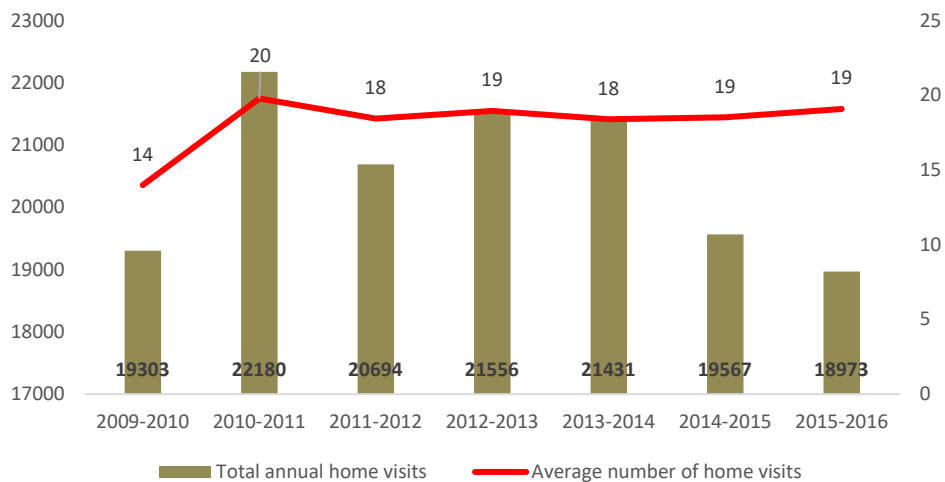


Figure 14 indicates that beginning in 2010-11, 72% to 78% of families received at least two visits per month.  As can be seen in Figure 15, the average duration of home visits across all years was more than 60 minutes--15 minutes longer than the 45 minutes required by the standards. Figure 16 depicts

the percent of home visits meeting or exceeding the required duration of 45 minutes or more, ranging from 98% to 100% across all years.

| **Figure 14. Percent of families with 2 or more visits per month** | In 2015-16, the percent of families that received 2 or more visits per month was more than 77%. The percent of families with 2 or more visits per month has averaged more than 70% since 2010-11. |
| --- | --- |

| **Figure 15. Average duration of home visits in hours** | Home visits routinely average 1 or more hours per visit. |
| --- | --- |

| **Figure 16. Percent of home visits lasting 45 or more minutes** | 100% of home visits in the past three years have lasted at least 45 minutes. |
| --- | --- |
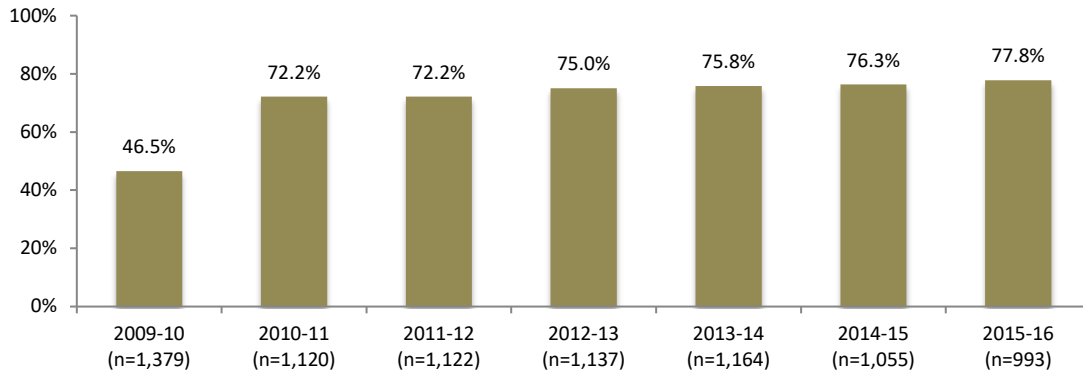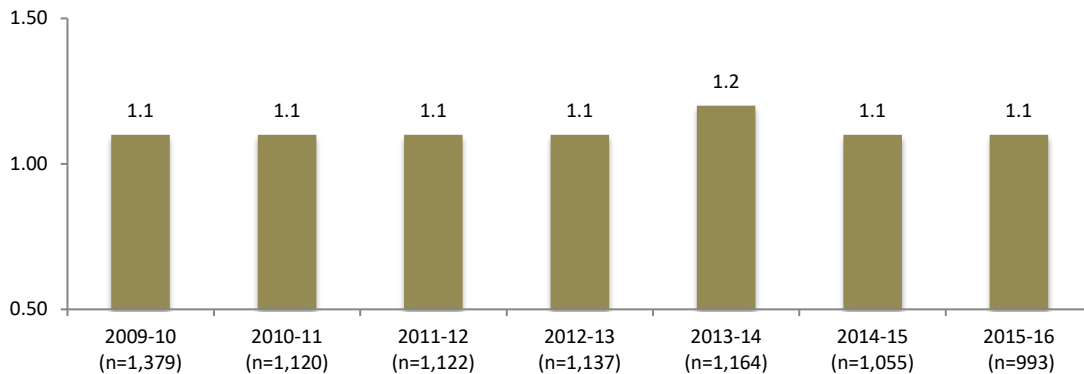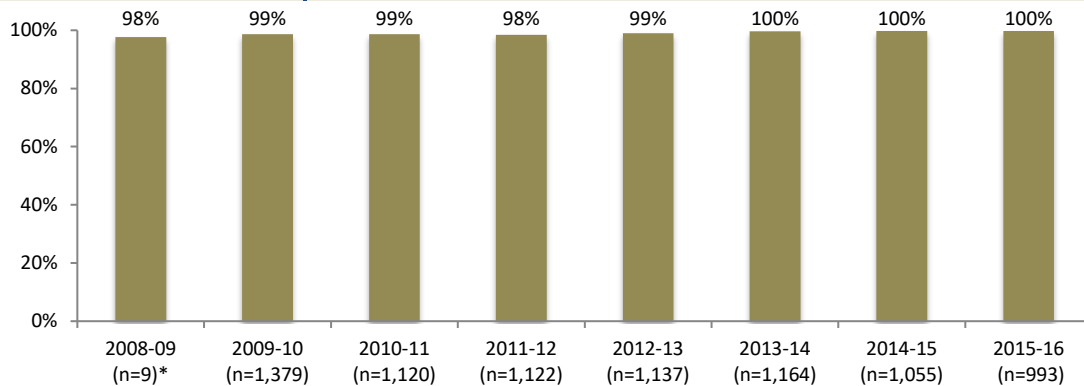
**Group Meetings**

Group meetings are conducted to extend the resources and services available to families while also reducing isolation among families.  Constantino et.al. (2001)[15] studied the efficacy of supplemental group meetings (associated with home visitation services) and found that the provision of a group-based intervention (among urban mothers living in poverty) increased the mothers' participation in home visitation and their ability to respond to infant emotional cues.  The authors concluded that:

> *…a series of group meetings designed to promote parents' practical understanding of children's earliest social relationships may constitute an effective means of engaging a sizable proportion of difficult-to-reach urban families in home visitation. Such meetings might also be a useful supplement for parents already participating in home visitation, since parents reported important benefits of the group meetings themselves, and may have acquired improved capacities to appropriately interpret their infants' emotional signals and to engage their infants affectively in play, independent of the effects of home visitation itself.*

Group meetings typically are offered at least once a month and are opportunities for parents to receive information and support on a number of issues of common interest to parents (e.g., discipline, toilet training).  Group meetings also may be held at different locations, to help parents gain information about different community resources (e.g., library services).

Figure 17 contains the average number of group meetings offered over a 12-month period by 36 affiliates for the three years between 2013-14 and 2015-16. As shown, the average falls just short of two meetings per month each year, which exceeds the standard requiring one group meeting per month. Some local programs, for example, offer more than the required number of group meetings so as to make meetings more accessible to families (e.g., by making group meetings available at different days or times each month).

> **South Carolina's First Steps standards:**
> At least one parent education group meeting will be offered each month (per vendor or area of service if large program) shall be offered, for a total of 12 per program year.

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[15] Constantino, J.N., Hashemi, N., Solis, E., Alon, T., Haley, S., McClure, S., Nordlicht, N., Constantino, M.A., Elmen, J., and Carlson, V.K. (2001).  Supplementation of urban home visitation with a series of group meetings for parents and infants: results of a "realworld" randomized, controlled trial. *Child Abuse & Neglect*, 25, 1571–1581.

**Figure 17. Average number of group meetings per month, annually** | In the past three years, at least one group meeting has been offered each month.

| | | |
|---|---|---|
| 1.9 | 1.8 | 1.8 |
| 2013-14 | 2014-15 | 2015-16 |
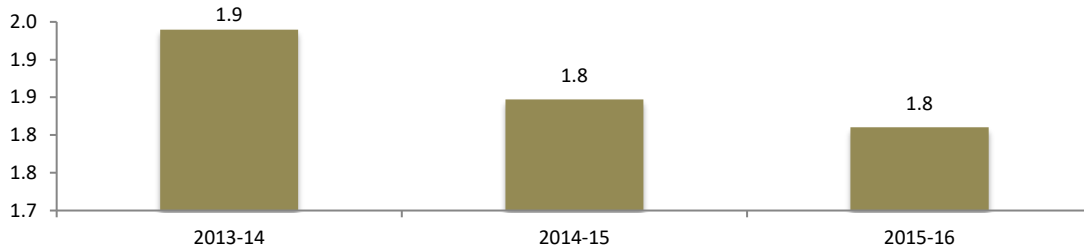
It should be noted that national PAT standards require affiliates to offer group meetings each month (or, 12 group meetings each year); there aren't standards, however, for the number of meetings individual families should attend. Individual family attendance may, for example, be affected by the availability of transportation or family availability at the date and time of the group meeting[16]. That stated, it is encouraging to observe that almost two-thirds of families in recent years have attended at least one group meeting per year (Figure 18).

**Figure 18. Percent of families attending at least one group meeting, annually** | Over time, the percent of families attending at least one group meeting each year has grown from ~50% in 2009-2010 to ~63% in 2015-2016.

| 2009-10 (n=1,379) | 2010-11 (n=1,120) | 2011-12 (n=1,122) | 2012-13 (n=1,137) | 2013-14 (n=1,164) | 2014-15 (n=1,055) | 2015-16 (n=993) |
|---|---|---|---|---|---|---|
| 50.2% | 55.1% | 59.8% | 53.3% | 57.2% | 61.3% | 63.5% |

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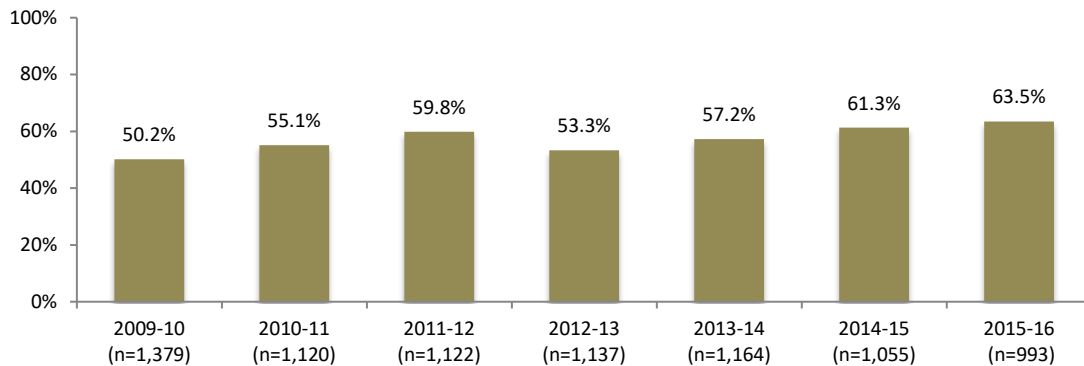
[16] Family attendance also may be affected by topic. Families whose children are no longer toilet training may not find value in a session focused on that topic, for example.

**Screenings**

An additional core service provided by PAT is child screening.  Specifically, PAT affiliates are required to, annually, administer developmental and health screenings to enrolled children (as appropriate; children may not be eligible for some screenings, for example, until two months of age).  As can be seen in Figure 19, increasing proportions of enrolled children received health screenings (i.e., vision, hearing, and dental). It is notable that this was especially true in more recent years (2014-15 and 2015-16) when the percentages increased dramatically to 50% or more of children being screened for vision, hearing, or dental issues.  This may, in large part, be due to the creation of the Health Screenings report.

> **South Carolina's First Steps standards:**
> Each client child shall be assessed using an age-appropriate developmental screening tool (e.g. Ages & Stages, Brigance, DIAL-3, etc.). In the event that a developmental screening (conducted in association with any First Steps-funded program) indicates a possible developmental delay, the vendor shall collaborate with parents/guardians to seek the consensual provision of these results to: (a) the child's pediatric care provider, *and* (b) either BabyNet (ages 0-3) or the child's zoned school district and Disabilities and Special Needs Board (ages 3-5) for additional diagnostic evaluation.

| Figure 19. Percent of children receiving health screenings | Increasing percentages of children are receiving annual vision, hearing, and dental screenings. |
| --- | --- |



Figure 19. Percent of children receiving health screenings (Vision, Hearing, Dental) by year:
- (n=1,179) 2008-09: Vision 21%, Hearing 21%, Dental 11%
- (n=1,392) 2009-10: Vision 17%, Hearing 18%, Dental 10%
- (n=1,142) 2010-11: Vision 18%, Hearing 19%, Dental 7%
- (n=1,126) 2011-12: Vision 13%, Hearing 12%, Dental 6%
- (n=1,148) 2012-13: Vision 16%, Hearing 18%, Dental 9%
- (n=1,084) 2013-14: Vision 17%, Hearing 26%, Dental 10%
- (n=1,073) 2014-2015: Vision 78%, Hearing 75%, Dental 53%
- (n=1,005) 2015-2016: Vision 77%, Hearing 75%, Dental 66%
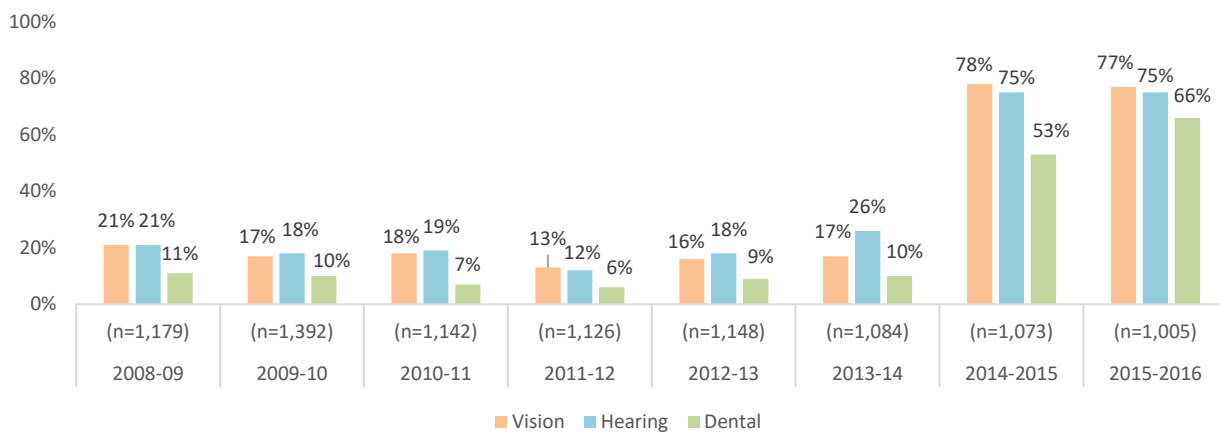
With regard to developmental screening, programs could choose from a list of screening tools approved by PAT.   Two commonly-used instruments, the Ages and Stages Questionnaire (ASQ) and the Ages and Stages Questionnaire: Socio-Emotional (ASQ:SE), were included in the state's data reporting system beginning in 2011-12, although the ASQ:SE was not required until 2013-14.  Figure 20 shows the number of children with ASQ/ASQ:SE screenings between 2009 and 2015[17]. Figure 20 also presents the total number of ASQ/ASQ:SE screenings conducted, noting that some children may receive more than one screening per year (based on age eligibility or need, for example).

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[17] Note: Due to issues related to linking across the various datasets provided for the evaluation as well as duplicate entries for some children, there is some concern about the accuracy of the ASQ/ASQ:SE data reported herein.

| **Figure 20. Number of ASQ and ASQ:SE screenings conducted** | Eligible children receive at least one ASQ and one ASQ:SE per year.  In some instances, children receive more than one screening each year. |
|---|---|

| | **# Children Assessed** | | | | **Total Assessments** | |
|---|---|---|---|---|---|---|
| **Year** | **ASQ** | **ASQ - SE** | | **Year** | **ASQ** | **ASQ - SE** |
| **2009** | 1 | 0 | | **2009** | 1 | 0 |
| **2010** | 4 | 9 | | **2010** | 7 | 9 |
| **2011** | 1008 | 54 | | **2011** | 1635 | 55 |
| **2012** | 1072 | 101 | | **2012** | 1810 | 103 |
| **2013** | 1030 | 736 | | **2013** | 1809 | 982 |
| **2014** | 1001 | 845 | | **2014** | 1729 | 1195 |
| **2015** | 999 | 920 | | **2015** | 1723 | 1268 |

Figure 21 provides the percent of children identified as having a delay or a potential delay in developmental domains targeted by the ASQ and ASQ:SE. Note that proportions of children identified as having delays or potential delays varies across years, being as low as zero in some years and as high as 23% in others (2010-2011 fine motor skills delays).

| **Figure 21. Percent of eligible children with delays or potential delays, identified by the ASQ or ASQ:SE** | Across years, the percent of children identified as having a delay or potential delay varies from zero to 23%. |
|---|---|

| | | **Communication** | | **Gross Motor** | | **Fine Motor** | | **Problem Solving** | | **Personal-Social** | | **Social/Emotion Overall** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year** | **N** | **Potential Delay** | **Delay** | **Potential Delay** | **Delay** | **Potential Delay** | **Delay** | **Potential Delay** | **Delay** | **Potential Delay** | **Delay** | **Potential Delay** | **Delay** |
| 09-10 | 1 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0.00% |
| 10-11 | 13 | 7.7% | 0% | 0% | 7.7% | 0% | 23.1% | 0% | 7.7% | 0% | 15.4% | 0% | 15.4% |
| 11-12 | 1034 | 10.4% | 8.5% | 5.6% | 8.% | 8.3% | 10.8% | 12.2% | 12.1% | 4.4% | 8.3% | 0% | 0.6% |
| 12-13 | 1100 | 10.1% | 8.1% | 7.4% | 7.1% | 7.7% | 10.6% | 12.6% | 11.4% | 6.3% | 7.6% | 0% | 0.6% |
| 13-14 | 1061 | 10.7% | 8.6% | 5.5% | 7.3% | 8.6% | 10.3% | 11.9% | 10.5% | 6.8% | 7.4% | 0% | 7.8% |
| 14-15 | 1036 | 9% | 8.9% | 5.3% | 7.5% | 8.5% | 9.2% | 10.2% | 10.5% | 7.3% | 8.% | 0% | 7% |
| 15-16 | 1044 | 9.7% | 7.8% | 5.8% | 7.1% | 9.1% | 10.3% | 10.1% | 11.6% | 7.6% | 7.1% | 0% | 7.9% |

**Referrals**

The final core service provided by PAT is referral of families to available resources and services. In providing referrals, parent educators provide information about general services and programs that may be of interest to families as well as specific resources that families may use to

address specific challenges or needs. PAT requires follow-up on referrals—helping to ensure parents connect with available and appropriate community-based resources and services. This is an especially helpful aspect of home visitation services as parents may experience challenges to completing the referral process. As the Office of Head Start documents[18], in reflecting on referrals for mental health services:

> *Facilitating a referral for … services involves helping families understand the value of engaging in these services and matching them with the best available provider to ensure a good fit. When program staff take intentional steps to facilitate a referral, families are more likely to accept, participate, and benefit from services.*
>
> *A family's difficulty following through with a referral can often be influenced by multiple issues, such as having to wait a long time for their appointment, meeting with a provider who isn't prepared, having expectations that don't match how the first meeting is handled, etc. Program staff can be intentional about their support to families to help ensure they get access to these critical services.*

Referral tracking was added to the First Steps reporting system in 2010-11. The majority of referrals across all years were for family events/activities, "other" resources, library resources, and early education programs. A very wide variety of resources are included in "other" so they are not listed, but the ones most often used included Toys for Tots, Christmas Assistance, Car Seat Safety, Clothing, and Taxes. Other programs often referred to include adult services (English language, education, and employment); assistance with food, housing, and clothing; and medical services.

The complete list of referral topics or types is presented in Appendix C and below in Figure 22, where individual referrals types are collapsed into the categories "Family Needs and Events," "Parent Needs and Events," "Child Needs and Events," and "Other." As is shown in Figure 23, each year the greatest number of unique referrals were provided for "Family Needs and Events"—in amounts far

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[18] Office of Head Start National Center on Health. *Facilitating a Referral for Mental Health Services for Children and Their Families Within Early Head Start and Head Start (EHS/HS)*

surpassing the other categories.  Figure 24 shows the average number of referrals per family each year, which has steadily increased since 2011-2012.

| Figure 22. Referral categories and options | Family and child needs and events are the categories with the greatest numbers of referral options. |
|---|---|

| Referral categories | Referral options | |
|---|---|---|
| Family-needs and events | • Family Events/Activities<br>• Library Resources<br>• Family Connection<br>• DHEC – WIC<br>• English Language Classes<br>• Housing Resources<br>• Food Assistance<br>• DSS Food Stamps<br>• Clothing/Household items assistance<br>• Transportation Resources | • DSS other<br>• Domestic Violence Services<br>• DSS TANF<br>• Financial Management Services<br>• Mental Health Services<br>• Emergency Financial Assistance<br>• DSS Child Protective Services<br>• Family Shelter<br>• DHEC - Family Support Services<br>• Other Case Management (case mgt.) |
| Parent-needs and events | • Adult Education (Job Skills)<br>• Adult Education (GED)<br>• Employment Resources | • Medical Home Adult<br>• Mentoring for New Mothers |
| Child-needs and events | • Early Education Program<br>• Medical (Other)<br>• Medicaid<br>• Speech Services<br>• Medical (Hearing)<br>• Dental Services Provider<br>• Medical (Vision Screening)<br>• Other Health/Medical Services<br>• Child Abuse/Maltreatment Resources | • Medical (Developmental Delay)<br>• Dept. of Disabilities & Special N<br>• Medical Home Pediatric<br>• Vision Services<br>• Medical (Immunizations)<br>• Help Me Grow<br>• DHEC - Children\'s Rehab Servi<br>• CHIP Children\'s Health Insuran |
| Other | • Other Referral | |

**Figure 23. Number of family, parent, and child-related referrals**

Since 2010-2011, most referrals have been issued for family-needs or events.

| Year | Family-needs or events | Parent-needs or events | Child-needs or events | Other |
|------|------|------|------|------|
| 2010-11 | 1264 | 186 | 339 | 354 |
| 2011-12 | 967 | 173 | 248 | 312 |
| 2012-13 | 1113 | 130 | 241 | 382 |
| 2013-14 | 1723 | 134 | 277 | 486 |
| 2014-15 | 1603 | 127 | 367 | 440 |
| 2015-16 | 1368 | 130 | 340 | 426 |

■ Family-needs or events  ■ Parent-needs or events  ■ Child-needs or events  ■ Other
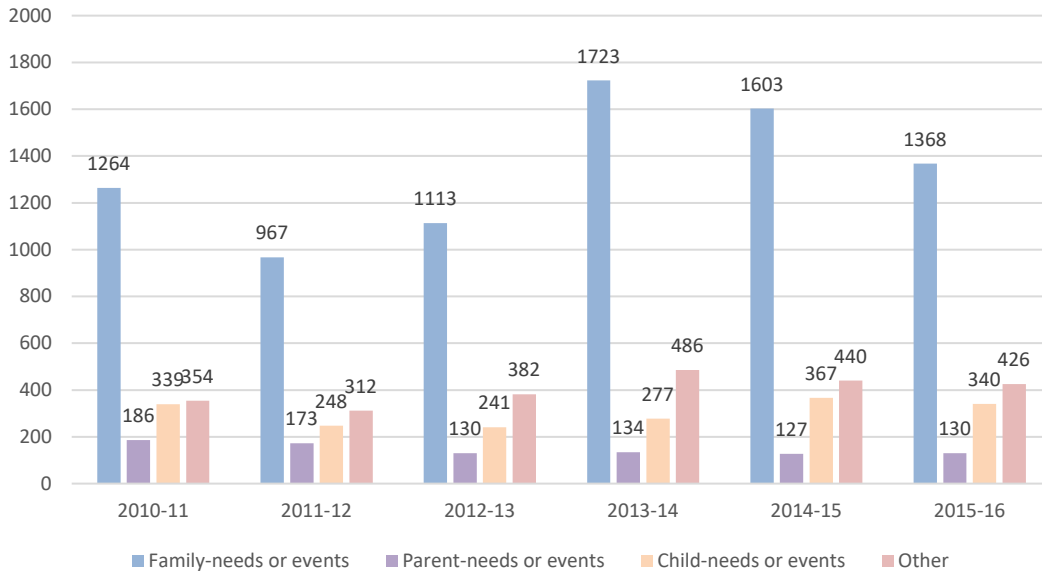
**Figure 24. Average number of referrals per family**

The average number of referrals per family has risen to 4.6, in 2015-2016.

| Year | Average |
|------|------|
| 2010-2011 | 1.9 |
| 2011-2012 | 1.5 |
| 2012-2013 | 1.6 |
| 2013-2014 | 2.7 |
| 2014-2015 | 3.3 |
| 2015-2016 | 4.1 |
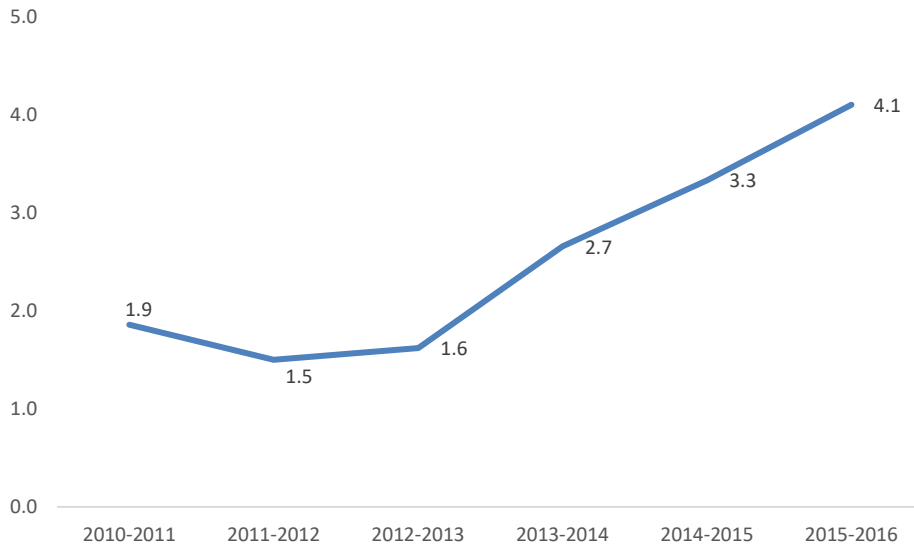
The vast majority of referrals made by PAT affiliates result in connections to the referrals, as required by the First Steps standards. While the percent of connections made following referrals has fluctuated to some extent across years (Figure 25), they range from a low of 86.8% in 2010-11, the first year that data were reported, to 96.2% in 2012-13, with the most recent year (2015-16) being 93.8%.

| Figure 25. Connections to Referrals, 2010-2016 *(data not available for 2008-09 and 2009-10)* | The connection rate for referrals is at or above 86%, since 2010-2011. |
|---|---|

| Referrals | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-2015 | 2015-2016 |
|---|---|---|---|---|---|---|
| Number of applications for referrals | 2,037 | 1,700 | 1,866 | 2,620 | 2,537 | 2,264 |
| Percent connections to referrals made - *% (n)* | 86.8% | 92.1% | 96.2% | 93.8% | 89.8% | 93.8% |

# Parent Outcomes

The second stage of the evaluation was to assess the extent to which the program is aligned with expected direct outcomes, which focus on enhancements to parenting practices and behaviors.  As suggested in the program logic model, these are the first outcomes that are expected to appear and signals that program investments are resulting in desired changes.  Therefore, it was important to focus on the extent to which there was evidence of positive changes in parenting.  Data from two sources were available: the Keys to Interactive Parenting Scale (KIPS) and the Adult-Child Interactive Reading Inventory (ACIRI).

## KIPS Results

The study team's analysis of KIPS data focused on one primary question:  did parents who received PAT services exhibit gains in parenting capacity?  The team anticipated several possible outcomes:

- Parents did not exhibit meaningful differences in parenting capacity, after receiving PAT services,
- Parents did exhibit meaningful differences in capacity and,
  - o   the magnitude of differences was related to length of exposure to PAT services, and
  - o   differences were moderated by parent or family characteristics.

**South Carolina's First Steps standards:**
All First Steps-funded vendors shall complete, at minimum, baseline and post assessments of the *primary adult client* identified within each enrolled case using the Keys to Interactive Parenting Scale (KIPS). A baseline KIPS assessment shall be completed within 45 days of each client's initial enrollment, with a post assessment conducted 6-9 months later, at each 12 month interval thereafter and/or within 30 days of planned program completion.

The program used the Keys to Interactive Parenting (KIPS) to track changes in parenting capacity.  More specifically, the KIPS examines 12 difference parenting behaviors, as shown in Figure 26.

| Figure 26.  Keys to Interactive Parenting, parenting behaviors | The Keys to Interactive Parenting scale tracks twelve parenting behaviors. |
|---|---|

1. Sensitivity of Responses
2. Supports Emotions
3. Physical Interaction

7. Reasonable Expectations
8. Adapts Strategies to Child
9. Limits & Consequences

4. Involvement in Child's Activities      10. Supportive Directions
5. Open to Child's Agenda      11. Encouragement
6. Engagement in Language Experiences      12. Promotes Exploration & Curiosity

The KIPS is administered while the parent educator observes the parent and child interacting together.  Items related to each parenting behavior (noted above) are scored on a scale of 1-5 wherein a score of "1" indicates an area for strengthening and a score of "5" indicates an area of strength.  An overall mean score closer to "5" suggests the parent has numerous strengths to work with, while an overall mean score closer to "1" suggests the parents has numerous areas in which to work.

The current analyses examined longitudinal change in KIPs in the PAT group. The specific goals were two-fold: 1) Examine whether KIPS changed over time and 2) test whether the "dose" of PAT predicted KIPS outcomes (e.g., did more home or group visits predict better KIPS?). In these analyses, the total group/home visits were defined as the number of visits attended before the given KIPS assessment. Time was centered at the first KIPS assessment and scaled to correspond to years (e.g., 0=first baseline KIPS, 1=KIPS assessment 1 year after baseline, etc.). In order to achieve more stability in the estimation of longitudinal trajectories, observations beyond 5 years post-baseline were excluded in the analyses because of sparseness (only 1.7 % of observations). The nesting of repeated measures within each family was handled using multilevel modeling[19].

The analyses included 4,112 subjects that had an average of 2.62 KIPS reports[20].  Figure 27 displays the results from the

> Fixed effects models control for variation within families.

multilevel model. The KIPS score showed **significant change over time** and students varied in their longitudinal trajectories (p<.05). Scores increased over the first year then level out through the next two years and increase again over the last year.

Potential confounders should be considered when interpreting these longitudinal trends. For example, the upward trend at the end of the trajectories could be attributed to the fact that families retained in the program this long were benefiting whereas families with little or no benefit left services. Further, there were fewer observations in the later analysis years (e.g., < 2% of total observations come in year 4 post-baseline). Note as well that without a control group, it is difficult to determine the degree to which changes are typical trends or attributed solely to the PAT program.

Results showed a significant effect of number of risk factors on KIPS scores such that **having more risk factors predicted lower KIPs scores** (p<.0001). Using a standard alpha level of .05, the number

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[19] The multilevel models were estimated with restricted maximum likelihood estimation (REML) and the functional form for time followed a cubic trend with correlated random intercept (baseline) and linear time effects.
[20] Standard deviation of 1.77 (median=2, min=1, max=14)

of group visits did not significantly predict KIPS scores (i.e., there was no support for a "dose" effect related to group visits). However, the effect of number of home visits was statistically significant (p<.05) and suggested that **having more home visits was associated with increased KIPS scores**. It should be noted, however, that the association did not appear strong, given that the analysis was highly powered with a respectable sample size and number of assessments.

**Figure 27. Aggregate change over time in mean KIPS scores**
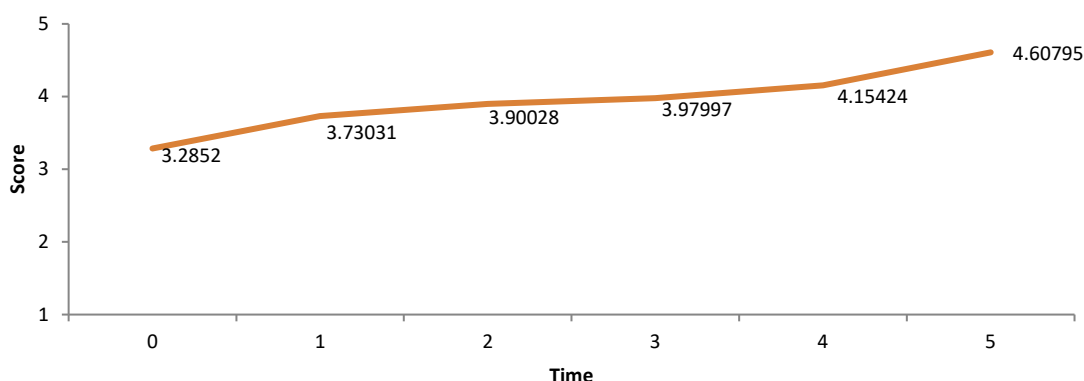


## ACIRI Results

The ACIRI assesses the interactive or shared reading between parents and children. The tool targets three types of literacy behaviors: (1) enhancing attention to text; (2) promoting interactive reading and supporting comprehension; and (3) use of literacy strategies and is completed by a parent educator who is observing a shared reading session between parent and child. The ACIRI is scored on a four-point scale wherein a score of "0" indicates no evidence of a specific behavior and a score of "3" indicates that a behavior occurs most of the time. Scores are available for both adults and children.

> **South Carolina's First Steps standards:**
> Each family containing children aged 2½ - 5 shall have their interactive literacy behaviors assessed (pre- and post-, with the initial assessment conducted within 45 days of a child within the household reaching 30 months of age) by a trained evaluator making use of the Adult-Child Interactive Reading Inventory (ACIRI).

The current analyses examined longitudinal change in ACIRI outcomes in the PAT group. As with KIPS analyses, there were two goals: 1) Examine whether ACIRI sub-scores changed over time and 2) test whether the "dose" of PAT predicts ACIRI outcomes. Total group and home visits were defined as in KIPS analyses. In order to achieve more stability in the estimation of longitudinal trajectories, observations beyond 3 years post-baseline were excluded in the analyses because of sparseness (only 3.2 % of observations). As with KIPS analyses, the nesting of repeated measures within each family was

handled using multilevel modeling. The multilevel models were estimated with restricted maximum likelihood estimation (REML) and the functional form for time followed a cubic trend with correlated random intercept (baseline) and linear time effects.

The analyses included 2,211 subjects that had an average of 2.27 ACIRI reports[21]. Results were substantively similar across the six ACIRI outcomes (Child Enhancing Attention to Text; Child Promoting Interactive Reading and Supporting Comprehension; Child Use of Literacy Strategies; Adult Enhancing Attention to Text; Adult Promoting Interactive Reading and Supporting Comprehension; Adult Use of Literacy Strategies; Figure 28). The ACIRI domains showed significant change over time and children and adults varied in their longitudinal trajectories (p<.05). Scores increased over the first year then leveled out through the next two years and increase again over the last year (Figure 28). Potential confounding factors associated with the KIPS analyses also apply.

Results did not consistently show that the number home or group visits predicted ACIRI outcomes (i.e., there no support for a "dose" effect related to home or group visits). Using an alpha level of .05, there was a significant group visit effect on Child Promoting Interactive Reading and Supporting Comprehension (Model 2) such that increased group visits predicted increased Child Promoting Interactive Reading and Supporting Comprehension scores (p<.05). However, the magnitude of the effect is small. For a subset of the outcomes (mean scores on Child Enhancing Attention to Text, Child Promoting Interactive Reading and Supporting Comprehension, Adult Enhancing Attention to Text, and Adult Promoting Interactive Reading and Supporting Comprehension) increased risk factors predicted decreased scores (p<.05) but, again, the magnitude of this effect was not large.

**Figure 28. Aggregate change over time in mean ACIRI scores**



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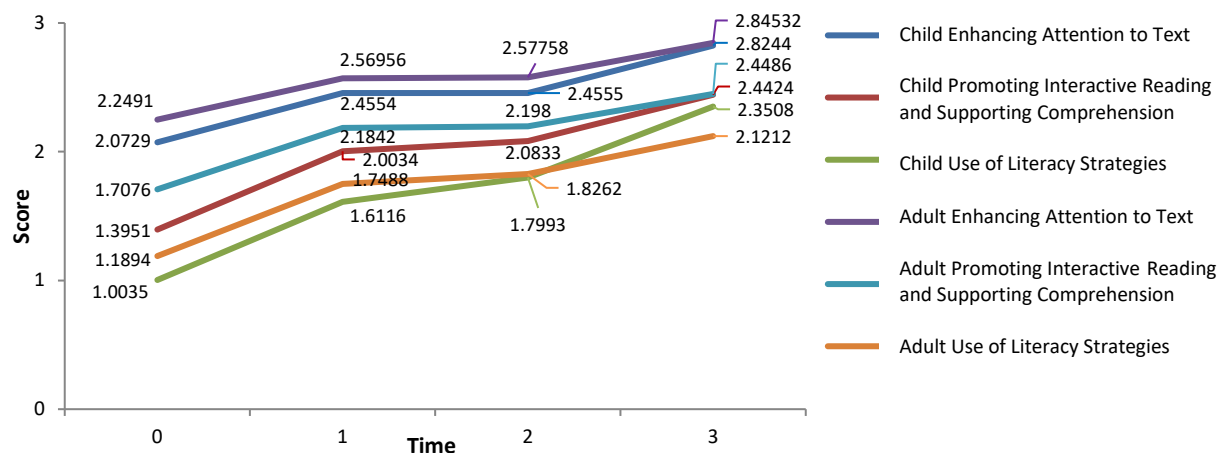
[21] Standard deviation of 1.32; median of 2; range from 1 to 9

# Child Outcomes

The final stage of the evaluation addressed the extent to which longer-term changes were observed, with a focus on child-level outcomes. Several outcomes were addressed by the current study: grade retention, identification for and placement in special education services, and performance on the CIRCLE assessment at kindergarten entry. The availability of comparison data (or, data from the general population which included less disadvantaged and vulnerable children) made it possible for the study team to assess the extent to which the highly vulnerable population served by the program was able to start school on or close to an "equal footing." Further, the study team examined whether or not the program was aligned with supportive placements such as services for children with special or developmental learning needs as this also is a strong program outcome.

## Grade Retention

Two logistic regression models were used to test predictors of grade retention in kindergarteners from the 2015-16 school year (grade retention data were not available for other years or grades).

> Logistic regression is an analytic technique used when the outcome variable of interest is binary—such as pass/fail.

Two models were generated and analyzed. The first model incorporated non-PAT students with available data while the second incorporated only students whose families participated in PAT.

As is seen in Figure 29, 8.1% of the full sample of non-PAT students (2,022 of 24,913) were retained, compared to 10% (44 of 440) of PAT students. Also of interest:

- A higher proportion of male students were retained, compared to female students.
- A higher proportion of SNAP-participating students were retained, compared to students who did not participate in SNAP.

**Figure 29. Grade retention among all kindergarten students, 2015-16**

| | | Grade Retention | |
|---|---|---|---|
| Group | Total N | % | n |
| Female | 11,643 | 6.14 | 715 |
| Male | 13,270 | 9.85 | 1307 |
| | | | |
| Black | 11,371 | 8.36 | 951 |
| Other | 3,849 | 5.22 | 201 |
| White | 9,693 | 8.98 | 870 |
| | | | |
| No SNAP | 12,506 | 6.68 | 835 |
| SNAP | 12,407 | 9.57 | 1187 |
| | | | |
| No Combo | 23,907 | 7.97 | 1905 |
| Combo* | 1,006 | 11.63 | 117 |
| | | | |
| Non-PAT | 24,473 | 8.08 | 1978 |
| PAT | 440 | 10.00 | 44 |

*A combination measure (Combo) was created in the process of data extraction and represents the combination of SNAP and TANF data.

A logistic regression model was applied to the full sample to further assess the relationship between PAT participation and retention. Results showed significant effects of gender, ethnicity, and socioeconomic status (SES) on grade retention (p<.0001 for all). Specifically, males had greater odds of grade retention compared to females (Odds ratio=1.68). Black and other race students had reduced odds of grade retention compared to white students (Odds ratio black vs. white = .80; Odds ratio other vs. white = .55, p<.0001 for both comparisons). The odds of grade retention were significantly larger for students with SNAP and combination programs compared to those students without (Odds ratio SNAP vs. no SNAP = 1.67; Odds ratio combination vs. no combination = 2.04; p<.0001 for both comparisons). **However, there was no statistically significant difference in grade retention for PAT vs. non-PAT students (p=.20).**

Figure 30 presents similar statistics, restricted to **only** those students who participated in PAT. Of interest, male PAT students were almost twice as likely to be retained, as were students served by SNAP.

**Figure 30. Grade retention among kindergarten students who participated in PAT, 2015-16**

| | | Grade Retention | |
|---|---|---|---|
| Group | Total N | % | n |
| Female | 216 | 6.94 | 15 |
| Male | 221 | 12.67 | 28 |

| | | | |
|---|---|---|---|
| Black | 300 | 11.33 | 34 |
| Other | 74 | 2.70 | 2 |
| White | 63 | 11.11 | 7 |
| | | | |
| No SNAP | 157 | 6.37 | 10 |
| SNAP | 280 | 11.79 | 33 |
| | | | |
| No Combo | 36 | 11.11 | 4 |
| Combo | 401 | 9.73 | 39 |

As with the full sample of students, a logistic regression model was applied to the PAT sub-sample. Results showed a significant gender effect such that PAT males had higher odds of grade retention relative to PAT females controlling for the other variables in the model (Odds ratio=1.99, p<.05). There were not statistically significant differences across races (Omnibus p=.12). Further, there were not statistically significant effects of number of risk factors, number of home visits, or number of group visits on grade retention (p>.05 for all).

## Special Education

Logistic regression models also were used to examine special education status.  Two models were constructed: one model for 2014-15 and another for 2015-16. The 2014-15 model included a total of n=58,655 subjects, with all subjects being in pre-kindergarten. The 2015-16 model consisted of a total of n=79,615, with 24,913 subjects (31.3%) in pre-kindergarten and 54,702 (68.7%) being in kindergarten.

Figure 31 presents descriptive information for the first model (2014-2015).  As can be seen, almost 16 percent of PAT students received special education placement, compared to almost 11 percent of students who were not involved in PAT.  Also of interest:

- More than twice as many males received special education status, compared to females.
- Indian, White, and African-American students received the highest levels of special education identification.
- SNAP-participants were more likely to receive special education status.

**Figure 31. Special education status, 2014-2015, Prekindergarten students only**

|  |  | Special Education | |
| --- | --- | --- | --- |
| **Group** | **Total N** | **%** | **n** |
| Female | 28,465 | 7.03 | 2,000 |
| Male | 30,190 | 14.61 | 4,411 |
|  |  |  |  |
| Asian/Pacific | 1,125 | 6.93 | 78 |
| African-American | 22,669 | 11.06 | 2,507 |
| Hispanic | 5,399 | 8.50 | 459 |
| Indian | 355 | 12.39 | 44 |
| White | 29,107 | 11.42 | 3,323 |
|  |  |  |  |
| No SNAP | 34,140 | 9.67 | 3,303 |
| SNAP | 24,515 | 12.68 | 3,108 |
|  |  |  |  |
| No Combo | 56,349 | 10.91 | 6,149 |
| Combo | 2,306 | 11.36 | 262 |
|  |  |  |  |
| Non-PAT | 57,811 | 10.86 | 6,279 |
| PAT | 844 | 15.64 | 132 |

A logistic regression analysis was used to test the significance of differences in special education placement for 2014-2015. Results showed that there were gender, race, SES, and PAT group differences in the odds of being special education (p<.001 for all). Specifically, males had greater odds of being special education compared to females (Odds ratio=2.27; p<.0001), white students had significantly smaller odds relative to all racial groups except Indian (Odds ratios .65 to .84), SNAP and Combo students had greater odds than those without (Odds ratios 1.45 and 1.29, p<.001), and PAT kids had greater odds of special education than non-PAT kids (Odds ratio=1.47, p<.0001)

Figure 32 presents descriptive information for the first model (2015-2016).  Among pre-kindergarten students, PAT students did not have higher levels of identification.  However, among kindergarten students, a higher percentage of PAT students received special education status, compared to non-PAT students.

| Group | Total N | Pre-Kindergarten Special Education % | n | Total N | Kindergarten Special Education % | n |
|---|---|---|---|---|---|---|
| Female | 11,643 | 10.74 | 1,251 | 26,777 | 7.29 | 1,953 |
| Male | 13,270 | 23.10 | 3,066 | 27,925 | 15.47 | 4,319 |
| | | | | | | |
| Asian/Pacific | 410 | 17.07 | 70 | 1,032 | 7.17 | 74 |
| African-American | 11,371 | 15.38 | 1,749 | 21,116 | 11.47 | 2,422 |
| Hispanic | 3,282 | 11.27 | 370 | 5,165 | 9.02 | 466 |
| Indian | 157 | 15.92 | 25 | 315 | 14.60 | 46 |
| White | 9,693 | 21.70 | 2,103 | 27,074 | 12.06 | 3,264 |
| | | | | | | |
| No SNAP | 12,506 | 17.90 | 2,238 | 32,864 | 10.34 | 3,397 |
| SNAP | 12,407 | 16.76 | 2,079 | 21,838 | 13.17 | 2,875 |
| | | | | | | |
| No Combo | 23,907 | 17.33 | 4,144 | 52,957 | 11.45 | 6,061 |
| Combo | 1,006 | 17.20 | 173 | 1,745 | 12.09 | 211 |
| | | | | | | |
| No PAT | 24,473 | 17.35 | 4,245 | 53,916 | 11.44 | 6,169 |
| PAT | 440 | 16.36 | 72 | 786 | 13.10 | 103 |

Finally, the logistic regression analyses conducted on the 2015-2016 samples were substantively similar to those from the 2014-15 model, with the exception of the PAT effect. Results showed that there were significant grade, gender, race, and SES effects on special education status (p<.001 for all). Grade 01 students experienced reduced odds of being special education relative to Grade 00 students (Odds ratio=.62, p<.0001). Males had greater odds of being special education compared to females (Odds ratio=2.39; p<.0001), white students had reduced odds relative to all racial groups except Indian (Odds ratios .58 to .77), SNAP and Combo students had greater odds of special education compared to those that did not qualify (Odds ratios 1.26 and 1.20, p<.01). Contrary to the 2014-15 model, PAT students and non-PAT students did not differ with regards to their odds of being special education (p=.21).

## Ages and Stages Questionnaire Screenings and Special Education Placement

The current study examined whether or not there was a relation between PAT ASQ screenings and special education statues.  To conduct this analysis, person-level ASQ and special education variables were computed and used. Specifically, if in the ASQ dataset, a student was categorized with a

delay/potential delay at any time-point, they were flagged (e.g., Delay at some point vs. Never a delay). Similarly, using the Department of Education file, if a subject was ever identified as having a special or learning delay or need, at any time, they classified as special education.

Figure 33 presents the conceptual comparison of special education status, as related to identification by the ASQ as either having a potential delay or a delay.

**Figure 33. Special education status, 2014-2015**

| | Student is not identified as special education | Student is identified as special education |
|---|---|---|
| **ASQ screening for a potential or actual delay** | • ASQ screening correctly identifies the student as not having a [potential] delay or delays<br>• ASQ screening incorrectly identifies students—the screening indicates a [potential] delay but the student does not have special needs or delays | • ASQ screening correctly identifies the student as having a [potential] delay or delays<br>• ASQ screening incorrectly identifies students—the screening indicates no [potential] delay but the student does have special needs or delays, identified at a later time |

The actual occurrences of special education versus non-special education status (2014-2015), related to the ASQ domains, were compared using independent groups t-tests, assuming unequal variances. Results (Figure 34) showed that special education students had a higher percentage of delays, as identified in the ASQ screening, than non-special education students across a variety of areas (p<.05 for all areas except potential delays in gross motor, problem solving, and personal-social domains). These results suggest that ASQ screenings, such as those performed by PAT, can be reliable indicators of whether or not a child qualifies for special education services.  Further, there is evidence that services provided in the birth-to-five time period can be linked to amelioration or successful intervention for the need such that the student no longer qualifies for services upon entry into K-12 education[22].

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[22] Impact of North Carolina's Early Childhood Programs and Policies on Educational Outcomes In Elementary School, Kenneth A. Dodge, Yu Bai, Helen F. Ladd, Clara G. Muschkin. Child Development, November 2016.  Retrieved from: http://dukespace.lib.duke.edu/dspace/handle/10161/13015

| | ASQ | Not Special Ed. (n=595) | Special Ed (n=95) | P-value |
|---|---|---|---|---|
| Potential Delay | Communication | 15.6% | 25.3% | 0.04 |
| | Gross Motor | 9.6% | 14.7% | 0.18 |
| | Fine Motor | 12.4% | 22.1% | 0.03 |
| | Problem Solving | 18.2% | 25.3% | 0.14 |
| | Personal-Social | 7.2% | 9.5% | 0.48 |
| | Social/Emotional Overall | 0.0% | 0.0% | - |
| Delay | Communication | 9.7% | 38.9% | <.0001 |
| | Gross Motor | 7.4% | 15.8% | 0.03 |
| | Fine Motor | 11.1% | 23.2% | 0.009 |
| | Problem Solving | 11.4% | 32.6% | <.0001 |
| | Personal-Social | 8.4% | 27.4% | 0.0001 |
| | Social/Emotional Overall | 5.4% | 10.5% | 0.12 |

## CIRCLE Results

*mClass CIRCLE* is a computer-based early childhood literacy assessment that was administered to all publicly-funded 4- and 5-year-old prekindergarten and kindergarten students in SC in the fall of 2014, which marked the beginning of the school year. *mClass CIRCLE* is a reliable and valid research-based assessment system that uses standardized, criterion-referenced measures for screening and progress monitoring across the following areas:

- Letter Recognition
- Vocabulary
- Phonological Awareness
- Math
- Science
- Social Studies

- Social and Emotional Development
- Book and Print Awareness
- Early Writing
- Approaches to Learning
- Creative Arts Expression
- Physical Development and Health

The *CIRCLE* assessment data provided for the current study is limited to the items shown in Figure 35. Specifically, there are items related to phonological awareness, letter naming, vocabulary, and observable behaviors related to literacy and socioemotional development.

**Figure 35. 2014-2015 applicable CIRCLE items**

| Domain | Item | Description | Score Range |
|---|---|---|---|
| *Phonological Awareness* | Listening | 5 items that evaluate whether a child can differentiate between similar sounding words. | Maximum score of 5 |
| | Rhyming Part 1 | 9 items that evaluate whether a child can identify if two words rhyme or not. | Maximum score of 9 |

| | Rhyming Part 2 | 5 items that address whether or not children can provide a word that rhymes with another word. | Maximum score of 5 |
|---|---|---|---|
| | Alliteration | 7 items that evaluate whether or not a children can identify if a pair of words start with the same sound | Maximum score of 7 |
| | Words in a Sentence | 5 items that assess whether or not children can move manipulatives to indicate how many words are in a sentence. | Maximum score of 5 |
| | Syllabication | 7 items that evaluate if children know how words can be broken down into syllables | Maximum score of 7 |
| | Onset-Rime | 5 items that evaluate if a child is aware of phonological processing (i.e., blending) within single-syllable words. | Maximum score of 5 |
| | Composite Score | Composite created by summing together scores for Listening, Rhyming (Parts 1 and 2), Alliteration, Words in a Sentence, Syllabication, and Onset-Rime. | Maximum score of 43 |
| *Rapid Letter Naming* | Rapid Letter Naming | The number of uppercase and lowercase letters that a child can name in 60 seconds. | Maximum score of 52 |
| *Rapid Vocabulary Naming* | Rapid Vocabulary Naming | The number of pictures that a child can name in 60 seconds. | Maximum score of 55 |
| *Observable Behaviors Checklists* | Book and Print Concepts | 10 items that address topics such as author role and letters versus words. | Maximum score of 30 |
| | Early Writing | 11 items that evaluate whether students make letter-like symbols or write their own names with approximate letters. | Maximum score of 33 |
| | Social and Emotional Development | 25 items that allow teachers to rate students on domains considered to be important predictors of early academic and social success, including (a) Positive Social Behavior; (b) Classroom Community and Safety; (c) Emotion and Behavior Regulation; and (d) Self-Care. | Maximum score of 75 |

**PAT vs. non-PAT Differences**

Figure 35 displays the means and standard deviations for the CIRCLE outcomes stratified by PAT group. For Pre-K, the **PAT and non-PAT groups had comparable outcomes** and **the mean differences did not reach statistical significance for most outcomes** (p>.05 for most outcomes). For Kindergarten, **most of the mean differences between PAT and non-PAT students reached statistical significance** (non-PAT higher mean scores than PAT; p<.05), but these **results should be taken with caution**. The sample size for these comparisons was very large resulting in high statistical power, which can cause trivial group differences to become 'statistically significant'.  Examination of the descriptive statistics in Figure 36 suggests that the **group differences were not large**.

| Figure 36. Mean CIRCLE Score Performance in 2014-2015 | While statistically significant in some cases, there weren't large group differences in mean CIRCLE scores, across items and domains. [23] |
|---|---|

| | | Pre-Kindergarten | | | | | Kindergarten | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Non-PAT (n=15,935) | | PAT (n=275) | | Mean Diff. | Non-PAT (n=49,355) | | PAT (n=753) | | Mean Diff. |
| | | Mean | SD | Mean | SD | P-value | Mean | SD | Mean | SD | P-value |
| *Phonological Awareness* | Listening (max score of 5) | 3.78 | 1.35 | 3.69 | 1.37 | .76 | 4.55 | 0.91 | 4.42 | 0.99 | .08 |
| | Rhyming Part 1 (max score of 9) | 5.35 | 1.67 | 5.22 | 1.56 | .38 | 6.84 | 1.81 | 6.37 | 1.73 | <.0001 |
| | Rhyming Part 2 (max score of 5) | 0.74 | 1.41 | 0.63 | 1.28 | .36 | 2.53 | 2.03 | 2.04 | 1.99 | <.0001 |
| | Alliteration (max score of 7) | 3.81 | 1.22 | 3.77 | 1.05 | .53 | 5.00 | 1.51 | 4.70 | 1.54 | <.0001 |
| | Words in a Sentence (max score of 5) | 1.51 | 1.62 | 1.37 | 1.53 | .25 | 3.40 | 1.59 | 3.05 | 1.69 | <.0001 |
| | Syllabication (max score of 7) | 2.66 | 2.09 | 2.48 | 2.06 | .16 | 4.38 | 2.03 | 4.19 | 2.01 | .18 |
| | Onset-Rime (max score of 5) | 1.04 | 1.40 | 0.90 | 1.27 | .44 | 2.70 | 1.88 | 2.19 | 1.80 | .0002 |
| | Composite Score (max score of 43) | 18.89 | 7.06 | 18.06 | 6.71 | .16 | 29.40 | 8.07 | 26.97 | 7.86 | .001 |
| *Rapid Letter Naming* | Rapid Letter Naming (max score of 52) | 8.75 | 10.58 | 8.89 | 10.92 | .90 | 25.54 | 13.11 | 24.03 | 13.45 | .001 |
| *Rapid Vocabulary Naming* | Rapid Vocabulary Naming (max score of 55) | 14.14 | 6.51 | 13.40 | 6.26 | .54 | 19.31 | 6.32 | 17.62 | 6.33 | <.0001 |
| *Observable Behaviors Checklists* | Book and Print Concepts (max score of 30) | 20.72 | 6.23 | 20.29 | 6.31 | .29 | 28.11 | 5.25 | 27.01 | 5.68 | .0005 |
| | Early Writing (max score of 33) | 16.67 | 5.37 | 16.41 | 5.78 | .25 | 24.41 | 5.48 | 23.31 | 5.72 | .0002 |
| | Social and Emotional Development (max score of 75) | 53.13 | 14.17 | 51.08 | 14.61 | .02 | 63.99 | 11.88 | 61.38 | 12.48 | <.0001 |

## Male-Female Differences

Figure 37 shows the means and standard deviations for the CIRCLE outcomes stratified by sex. For both Pre-K and K, there was a general trend of females to have higher mean scores, compared to males (p<.05 for many outcomes). Again, the impact of large sample size should be factored into the

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[23] Note: Statistical tests control for age, gender, and race for Pre-K and age, gender, race, and pre-k program for K. Students were included if they had non-missing data one at least one of the CIRCLE outcomes. As a result, actual N's vary slightly across outcomes.

evaluation of if males and females were meaningfully different. Descriptive results suggest that for many of these "statistically significant" outcomes, the magnitude of the gender different is small.

| Overall, there are small differences between female and male students.[24]

| | | Pre-Kindergarten | | | | | Kindergarten | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Female (n=7,694) | | Male (n=8,514) | | Mean Diff. P-value | Female (n=24,314) | | Male (n=25,769) | | Mean Diff. P-value |
| | | Mean | SD | Mean | SD | | Mean | SD | Mean | SD | |
| *Phonological Awareness* | Listening (max score of 5) | 3.89 | 1.31 | 3.68 | 1.37 | <.0001 | 4.58 | 0.87 | 4.51 | 0.95 | <.0001 |
| | Rhyming Part 1 (max score of 9) | 5.46 | 1.65 | 5.24 | 1.68 | <.0001 | 6.96 | 1.78 | 6.71 | 1.83 | <.0001 |
| | Rhyming Part 2 (max score of 5) | 0.78 | 1.46 | 0.70 | 1.37 | <.0001 | 2.62 | 2.02 | 2.43 | 2.04 | <.0001 |
| | Alliteration (max score of 7) | 3.86 | 1.20 | 3.76 | 1.23 | <.0001 | 5.10 | 1.49 | 4.90 | 1.53 | <.0001 |
| | Words in a Sentence (max score of 5) | 1.59 | 1.64 | 1.44 | 1.60 | <.0001 | 3.51 | 1.55 | 3.29 | 1.62 | <.0001 |
| | Syllabication (max score of 7) | 2.74 | 2.08 | 2.58 | 2.09 | <.0001 | 4.47 | 1.99 | 4.30 | 2.06 | <.0001 |
| | Onset-Rime (max score of 5) | 1.06 | 1.42 | 1.02 | 1.38 | .03 | 2.81 | 1.87 | 2.58 | 1.89 | <.0001 |
| | Composite Score (max score of 43) | 19.39 | 7.04 | 18.42 | 7.03 | <.0001 | 30.05 | 7.90 | 28.71 | 8.17 | <.0001 |
| *Rapid Letter Naming* | Rapid Letter Naming (max score of 52) | 8.88 | 10.42 | 8.64 | 10.73 | .16 | 26.49 | 12.84 | 24.60 | 13.31 | <.0001 |
| *Rapid Vocabulary Naming* | Rapid Vocabulary Naming (max score of 55) | 14.18 | 6.49 | 14.08 | 6.51 | .07 | 19.20 | 6.37 | 19.36 | 6.28 | .02 |
| *Observable Behaviors Checklists* | Book and Print Concepts (max score of 30) | 21.26 | 6.25 | 20.22 | 6.17 | <.0001 | 28.52 | 5.00 | 27.68 | 5.45 | <.0001 |
| | Early Writing (max score of 33) | 17.58 | 5.51 | 15.84 | 5.11 | <.0001 | 25.16 | 5.10 | 23.66 | 5.72 | <.0001 |
| | Social and Emotional Development (max score of 75) | 55.28 | 13.88 | 51.11 | 14.17 | <.0001 | 65.90 | 10.80 | 62.12 | 12.57 | <.0001 |

**Race Differences**

Figures 38 and 39 show the descriptive statistical for CIRCLE outcomes by race. There was strong evidence supporting CIRCLE differences across racial groups (p<.0001 for all outcomes). Most notably,

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[24] Note: Statistical tests control for age, PAT group, and race for Pre-K and age, PAT group, race, and Pre-k program for K. Students were included if they had non-missing data one at least one of the CIRCLE outcomes. As a result, actual N's vary slightly across outcomes.

Hispanic students consistently had lower mean CIRCLE outcomes relative to the other racial groups. Other racial differences were more outcome-specific.

| Figure 38. Race Differences in 2014-2015 Mean Prekindergarten CIRCLE Scores | There are statistical and meaningful differences in mean CIRCLE scores, when examined by race. [25] |
|---|---|

| | | Asian/PI (n=279) | | Black (n=6,987) | | Hispanic (n=2,189) | | Indian (n=129) | | White (n=6,626) | | Mean Diff. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD | P-value |
| *Phonological Awareness* | Listening (max score of 5) | 3.55 | 1.43 | 3.70 | 1.35 | 3.32 | 1.39 | 3.71 | 1.36 | 4.03 | 1.27 | <.0001 |
| | Rhyming Part 1 (max score of 9) | 5.12 | 1.70 | 5.34 | 1.61 | 4.86 | 1.56 | 5.34 | 1.59 | 5.52 | 1.73 | <.0001 |
| | Rhyming Part 2 (max score of 5) | 0.76 | 1.47 | 0.75 | 1.41 | 0.28 | 0.85 | 0.70 | 1.42 | 0.89 | 1.53 | <.0001 |
| | Alliteration (max score of 7) | 3.83 | 1.31 | 3.84 | 1.18 | 3.63 | 1.18 | 3.68 | 1.13 | 3.83 | 1.26 | <.0001 |
| | Words in a Sentence (max score of 5) | 1.62 | 1.69 | 1.53 | 1.62 | 0.98 | 1.38 | 1.32 | 1.50 | 1.66 | 1.66 | <.0001 |
| | Syllabication (max score of 7) | 2.65 | 2.10 | 2.76 | 2.14 | 1.97 | 1.89 | 2.63 | 2.10 | 2.79 | 2.06 | <.0001 |
| | Onset-Rime (max score of 5) | 1.10 | 1.59 | 0.92 | 1.32 | 0.81 | 1.23 | 0.93 | 1.42 | 1.23 | 1.50 | <.0001 |
| | Composite Score (max score of 43) | 18.63 | 8.03 | 18.84 | 6.84 | 15.86 | 5.95 | 18.31 | 7.10 | 19.94 | 7.28 | <.0001 |
| *Rapid Letter Naming* | Rapid Letter Naming (max score of 52) | 14.85 | 13.70 | 9.86 | 11.03 | 5.17 | 8.27 | 6.76 | 8.96 | 8.56 | 10.32 | <.0001 |
| *Rapid Vocabulary Naming* | Rapid Vocabulary Naming (max score of 55) | 12.29 | 7.13 | 14.38 | 5.82 | 7.84 | 6.07 | 12.63 | 6.51 | 16.04 | 5.96 | <.0001 |
| *Observable Behaviors Checklists* | Book and Print Concepts (max score of 30) | 19.41 | 6.66 | 21.11 | 6.08 | 18.05 | 5.75 | 19.63 | 5.89 | 21.27 | 6.30 | <.0001 |
| | Early Writing (max score of 33) | 17.20 | 5.89 | 16.90 | 5.44 | 15.89 | 4.94 | 15.80 | 5.12 | 16.68 | 5.40 | <.0001 |
| | Social and Emotional Development (max score of 75) | 52.64 | 14.99 | 53.15 | 14.05 | 50.97 | 13.38 | 51.01 | 14.17 | 53.80 | 14.47 | <.0001 |

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[25] Note: Statistical tests control for age, PAT group, and gender. Students were included if they had non-missing data one at least one of the CIRCLE outcomes. As a result, actual N's vary slightly across outcomes.

| | | Asian/PI (n=1, 263) | | Black (n=6,831) | | Hispanic (n=2,153) | | Indian (n=122) | | White (n=6,352) | | Mean Diff. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD | P-value |
| *Phonological Awareness* | Listening (max score of 5) | 4.57 | 0.92 | 4.43 | 0.99 | 4.36 | 1.06 | 4.50 | 0.99 | 4.67 | 0.79 | <.0001 |
| | Rhyming Part 1 (max score of 9) | 7.03 | 1.89 | 6.67 | 1.83 | 6.03 | 1.83 | 6.67 | 1.75 | 7.11 | 1.74 | <.0001 |
| | Rhyming Part 2 (max score of 5) | 2.64 | 2.03 | 2.40 | 2.03 | 1.37 | 1.78 | 2.37 | 2.06 | 2.84 | 1.99 | <.0001 |
| | Alliteration (max score of 7) | 5.23 | 1.62 | 4.83 | 1.50 | 4.60 | 1.49 | 4.61 | 1.49 | 5.19 | 1.50 | <.0001 |
| | Words in a Sentence (max score of 5) | 3.63 | 1.56 | 3.28 | 1.62 | 2.85 | 1.68 | 3.14 | 1.64 | 3.59 | 1.51 | <.0001 |
| | Syllabication (max score of 7) | 4.61 | 2.10 | 4.31 | 2.06 | 3.84 | 2.10 | 4.21 | 2.02 | 4.53 | 1.96 | <.0001 |
| | Onset-Rime (max score of 5) | 3.09 | 1.90 | 2.25 | 1.85 | 2.29 | 1.87 | 2.61 | 1.86 | 3.10 | 1.82 | <.0001 |
| | Composite Score (max score of 43) | 30.79 | 8.45 | 28.19 | 8.11 | 25.34 | 8.03 | 28.10 | 7.95 | 31.03 | 7.58 | <.0001 |
| *Rapid Letter Naming* | Rapid Letter Naming (max score of 52) | 30.77 | 13.16 | 25.81 | 13.25 | 22.23 | 13.51 | 22.47 | 13.25 | 25.77 | 12.80 | <.0001 |
| *Rapid Vocabulary Naming* | Rapid Vocabulary Naming (max score of 55) | 18.75 | 7.20 | 18.72 | 5.83 | 13.27 | 7.01 | 18.67 | 6.32 | 20.92 | 5.70 | <.0001 |
| *Observable Behaviors Checklists* | Book and Print Concepts (max score of 30) | 28.36 | 5.65 | 27.56 | 5.36 | 25.97 | 6.03 | 27.19 | 5.65 | 28.92 | 4.80 | <.0001 |
| | Early Writing (max score of 33) | 25.90 | 4.95 | 23.68 | 5.66 | 23.56 | 5.58 | 23.56 | 6.11 | 25.06 | 5.23 | <.0001 |
| | Social and Emotional Development (max score of 75) | 65.63 | 11.70 | 62.19 | 12.40 | 62.59 | 12.17 | 60.90 | 13.14 | 65.58 | 11.17 | <.0001 |

[26] Note: Statistical tests control for age, PAT group, gender, and Pre-k program. Students were included if they had non-missing data one at least one of the CIRCLE outcomes. As a result, actual N's vary slightly across outcomes.

**Dosage Effects (Number of Home and Group Visits)**

Figures 40 through 43 display the means and standard deviations for the CIRCLE outcome by number of home and group visits for the PAT group. The general pattern of results did not support a consistent "dosage effect" on CIRCLE outcomes (e.g., more visits predicted better outcomes). The majority of outcomes failed to reach statistical significance across home and group visits and Pre-K and K students (p>.05 for most outcomes).

| **Figure 40. Differences in 2014-2015 Mean Prekindergarten CIRCLE Scores, when examined by Dosage of Home Visits** | There are statistical and meaningful differences in mean CIRCLE scores, when examined by race.[27] |
|---|---|

| | | 0-14 Home Visits (n=74) | | 15-44 Home Visits (n=93) | | 45+ Home Visits (n=108) | | Mean Diff. |
|---|---|---|---|---|---|---|---|---|
| | | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **P-value** |
| *Phonological Awareness* | Listening (max score of 5) | 3.79 | 1.24 | 3.70 | 1.45 | 3.61 | 1.40 | .83 |
| | Rhyming Part 1 (max score of 9) | 5.31 | 1.49 | 5.03 | 1.62 | 5.32 | 1.55 | .42 |
| | Rhyming Part 2 (max score of 5) | 0.96 | 1.56 | 0.42 | 1.04 | 0.59 | 1.22 | .04 |
| | Alliteration (max score of 7) | 3.54 | 1.06 | 3.77 | 1.04 | 3.93 | 1.03 | .66 |
| | Words in a Sentence (max score of 5) | 1.49 | 1.51 | 1.39 | 1.56 | 1.28 | 1.53 | .28 |
| | Syllabication (max score of 7) | 2.58 | 2.07 | 2.72 | 2.19 | 2.21 | 1.92 | .10 |
| | Onset-Rime (max score of 5) | 1.04 | 1.29 | 0.78 | 1.19 | 0.92 | 1.32 | .52 |
| | Composite Score (max score of 43) | 18.71 | 6.75 | 17.81 | 6.71 | 17.84 | 6.72 | .35 |
| *Rapid Letter Naming* | Rapid Letter Naming (max score of 52) | 9.07 | 11.13 | 8.03 | 10.90 | 9.50 | 10.85 | .66 |
| *Rapid Vocabulary Naming* | Rapid Vocabulary Naming (max score of 55) | 13.45 | 4.93 | 13.84 | 7.14 | 12.99 | 6.29 | .57 |
| *Observable Behaviors Checklists* | Book and Print Concepts (max score of 30) | 20.03 | 6.00 | 19.99 | 6.43 | 20.73 | 6.43 | .89 |
| | Early Writing (max score of 33) | 16.36 | 5.78 | 15.94 | 5.62 | 16.84 | 5.94 | .84 |
| | Social and Emotional Development (max score of 75) | 51.47 | 14.33 | 49.18 | 14.80 | 52.50 | 14.60 | .38 |

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[27] Note: Statistical tests control for age, PAT group, gender, and number of group visits. Students were included if they had non-missing data one at least one of the CIRCLE outcomes. As a result, actual N's vary slightly across outcomes.

| | | 0-14 Home Visits (n=279) | | 15-44 Home Visits (n=285) | | 45+ Home Visits (n=189) | | Mean Diff. |
|---|---|---|---|---|---|---|---|---|
| | | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **P-value** |
| *Phonological Awareness* | Listening (max score of 5) | 4.42 | 1.03 | 4.35 | 1.02 | 4.52 | 0.87 | .17 |
| | Rhyming Part 1 (max score of 9) | 6.32 | 1.70 | 6.37 | 1.77 | 6.44 | 1.73 | .27 |
| | Rhyming Part 2 (max score of 5) | 2.04 | 1.97 | 2.02 | 1.96 | 2.07 | 2.09 | .97 |
| | Alliteration (max score of 7) | 4.77 | 1.55 | 4.64 | 1.57 | 4.68 | 1.49 | .97 |
| | Words in a Sentence (max score of 5) | 3.09 | 1.74 | 3.04 | 1.71 | 3.02 | 1.61 | .57 |
| | Syllabication (max score of 7) | 4.20 | 2.00 | 4.12 | 2.03 | 4.30 | 2.01 | .54 |
| | Onset-Rime (max score of 5) | 2.20 | 1.74 | 2.13 | 1.84 | 2.28 | 1.81 | .81 |
| | Composite Score (max score of 43) | 27.04 | 7.72 | 26.67 | 8.06 | 27.32 | 7.78 | .75 |
| *Rapid Letter Naming* | Rapid Letter Naming (max score of 52) | 23.64 | 13.52 | 23.46 | 13.37 | 25.47 | 13.42 | .41 |
| *Rapid Vocabulary Naming* | Rapid Vocabulary Naming (max score of 55) | 17.60 | 6.34 | 17.53 | 6.24 | 17.78 | 6.50 | .57 |
| *Observable Behaviors Checklists* | Book and Print Concepts (max score of 30) | 26.99 | 5.75 | 26.90 | 5.75 | 27.20 | 5.49 | .56 |
| | Early Writing (max score of 33) | 23.11 | 6.03 | 23.45 | 5.49 | 23.39 | 5.63 | .70 |
| | Social and Emotional Development (max score of 75) | 60.73 | 13.03 | 61.56 | 12.14 | 62.09 | 12.15 | .96 |

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[28] Note: Statistical tests control for age, PAT group, gender, race, Pre-K program, and number of group visits. Students were included if they had non-missing data one at least one of the CIRCLE outcomes. As a result, actual N's vary slightly across outcomes.

| | | 0 Group Visits (n=86) | | 1-2 Group Visits (n=53) | | 3+ Group Visits (n=136) | | Mean Diff. |
|---|---|---|---|---|---|---|---|---|
| | | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **P-value** |
| *Phonological Awareness* | Listening (max score of 5) | 3.71 | 1.31 | 3.76 | 1.41 | 3.64 | 1.41 | .96 |
| | Rhyming Part 1 (max score of 9) | 5.08 | 1.46 | 5.16 | 1.84 | 5.33 | 1.51 | .39 |
| | Rhyming Part 2 (max score of 5) | 0.64 | 1.25 | 0.76 | 1.39 | 0.58 | 1.26 | .73 |
| | Alliteration (max score of 7) | 3.50 | 1.10 | 3.76 | 0.85 | 3.94 | 1.06 | .11 |
| | Words in a Sentence (max score of 5) | 1.26 | 1.44 | 1.32 | 1.41 | 1.46 | 1.63 | .17 |
| | Syllabication (max score of 7) | 2.38 | 2.04 | 2.48 | 1.97 | 2.54 | 2.12 | .24 |
| | Onset-Rime (max score of 5) | 1.01 | 1.38 | 0.72 | 0.93 | 0.90 | 1.31 | .47 |
| | Composite Score (max score of 43) | 17.60 | 6.54 | 17.96 | 6.65 | 18.39 | 6.86 | .22 |
| *Rapid Letter Naming* | Rapid Letter Naming (max score of 52) | 7.84 | 9.64 | 8.45 | 10.59 | 9.72 | 11.79 | .36 |
| *Rapid Vocabulary Naming* | Rapid Vocabulary Naming (max score of 55) | 12.89 | 6.13 | 13.17 | 5.75 | 13.81 | 6.55 | .14 |
| *Observable Behaviors Checklists* | Book and Print Concepts (max score of 30) | 19.93 | 6.42 | 19.53 | 6.15 | 20.81 | 6.30 | .35 |
| | Early Writing (max score of 33) | 16.43 | 6.06 | 15.41 | 4.53 | 16.78 | 6.02 | .37 |
| | Social and Emotional Development (max score of 75) | 49.17 | 14.94 | 48.12 | 13.28 | 53.39 | 14.61 | .02 |

[29] Note: Statistical tests control for age, PAT group, gender, and number of home visits. Students were included if they had non-missing data one at least one of the CIRCLE outcomes. As a result, actual N's vary slightly across outcomes.

| | | 0 Group Visits (n=291) | | 1-2 Group Visits (n=168) | | 3+ Group Visits (n=294) | | Mean Diff. |
|---|---|---|---|---|---|---|---|---|
| | | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **P-value** |
| *Phonological Awareness* | Listening (max score of 5) | 4.33 | 1.07 | 4.49 | 0.87 | 4.47 | 0.97 | .17 |
| | Rhyming Part 1 (max score of 9) | 6.41 | 1.74 | 6.52 | 1.63 | 6.24 | 1.78 | .31 |
| | Rhyming Part 2 (max score of 5) | 2.07 | 1.97 | 2.06 | 2.01 | 2.00 | 2.01 | .99 |
| | Alliteration (max score of 7) | 4.73 | 1.54 | 4.86 | 1.56 | 4.59 | 1.54 | .39 |
| | Words in a Sentence (max score of 5) | 2.99 | 1.79 | 3.07 | 1.61 | 3.11 | 1.65 | .27 |
| | Syllabication (max score of 7) | 4.20 | 2.08 | 4.16 | 2.10 | 4.21 | 1.90 | .95 |
| | Onset-Rime (max score of 5) | 2.27 | 1.86 | 2.15 | 1.76 | 2.14 | 1.76 | .57 |
| | Composite Score (max score of 43) | 26.99 | 8.21 | 27.30 | 7.83 | 26.77 | 7.54 | .97 |
| *Rapid Letter Naming* | Rapid Letter Naming (max score of 52) | 23.79 | 13.72 | 25.40 | 13.17 | 23.50 | 13.32 | .25 |
| *Rapid Vocabulary Naming* | Rapid Vocabulary Naming (max score of 55) | 17.53 | 6.84 | 17.45 | 5.89 | 17.81 | 6.06 | .69 |
| *Observable Behaviors Checklists* | Book and Print Concepts (max score of 30) | 26.58 | 5.82 | 27.16 | 6.05 | 27.35 | 5.29 | .05 |
| | Early Writing (max score of 33) | 23.19 | 5.83 | 23.30 | 5.72 | 23.43 | 5.63 | .62 |
| | Social and Emotional Development (max score of 75) | 60.42 | 12.74 | 61.07 | 12.29 | 62.53 | 12.26 | .10 |

[30] Note: Statistical tests control for age, PAT group, gender, race, Pre-K program, and number of home visits. Students were included if they had non-missing data one at least one of the CIRCLE outcomes. As a result, actual N's vary slightly across outcomes.

# Conclusions and Implications

The current study was designed to evaluate South Carolina's Parents as Teachers program, as implemented from 2008-2009 to 2015-2016. The study was designed to examine the program in stages, starting with the fidelity of the program to South Carolina and National Parents as Teachers expectations. Then, the study examined the extent to which the program was achieving its most direct outcomes—which focus on parenting as well as the identification of children with special or developmental needs. Finally, the study assessed the extent to which the program is aligned with the goal that highly vulnerable children can enter school alongside their less vulnerable or at-risk peers. The extended time horizon (program implementation over the course of eight years) allowed the study team to examine changes in implementation over time, noting that changes often occur in response to enhancements in requirements by South Carolina First Steps, National PAT, or both. The study's outcome-oriented questions were:

1. What is the relationship between exposure to PAT between the ages of 0-3 years and children's Pre-K or Kindergarten readiness outcomes?
2. What is the relationship between exposure to PAT and parenting outcomes as measured by KIPS/ACIRI?
3. What is the relationship between parenting outcomes as measured by KIPS/ACIRI and children's Pre-K or Kindergarten readiness outcomes as measured by CIRCLE scores and grade retention?
4. What is the relationship between exposure to PAT and interactive literacy as measured by KIPS/ACIRI?
5. Are there characteristics of children/families that moderate the impact of PAT on child or parent outcomes?

In responding to these questions, it is helpful to refer back to the Parents as Teachers logic model, shown below in Figure 44. The program logic model establishes the blueprint for how the program anticipates achieving its long-term goals of thriving families, strong communities, and children who are healthy and ready for success. It also is important to be cognizant that, for the families served, the changes reflected in the logic model may represent significant investments in learning about parenting and child development and modifying everyday behaviors so as to realize healthier lifestyles and enhanced family well-being. Therefore, the program recommends families invest in program services for a significant amount of the early childhood period.

**Figure 44. Parents as Teachers logic model**

## Inputs

### Core Values
> The early years of a child's life are critical for optimal development and provide the foundation for success in school and in life.
> Parents are their children's first and most influential teachers.
> Established and emerging research is the foundation of our curricula, training, materials and services.
> All young children and their families deserve the same opportunities to succeed, regardless of any demographic, geographic, or economic considerations.
> An understanding and appreciation of the history and traditions of diverse cultures is essential in serving families.

### Theoretical Framework
> Human Ecology and Family Systems
> Developmental Parenting
> Attribution Theory
> Empowerment and Self-Efficacy

### Community Context
> Community needs and relationships
> Organizational capacity
> Well-trained and competent staff

## Activities

**Reflective Supervision**

### Training and Professional Development
Initial training and ongoing professional development build parent educators' core competencies in the following areas:
> Family Support and Parenting Education
> Child and Family Development
> Human Diversity Within Family Systems
> Health, Safety, and Nutrition
> Relationships Between Families and Communities

### Model Components
> Personal Visits
> Group Connections
> Screening
> Resource Network

### Approach
Parent educators share research-based information and utilize evidence-based practices by **partnering**, **facilitating**, and **reflecting** with families.

Parent educators use the Parents as Teachers *Foundational Curriculum* in culturally sensitive ways to deliver services that emphasize:

**Parent-Child Interaction**
> Parenting behaviors
> Child development
> Parent-child activities

**Development-Centered Parenting**
> Link between child development and parenting
> Developmental topics (attachment, discipline, health, nutrition, safety, sleep, transitions/routines, and healthy births)

**Family Well-Being**
> Family strengths, capabilities, and skills
> Protective factors based on the Strengthening Families™ approach
> Resourcing

### Fidelity and Quality Assurance
> Readiness Reflection
> Quality Assurance Guidelines
> Essential Requirements
> Model Implementation Training and Guide

**Evaluation and Continuous Quality Improvement**

## Outcomes

### Short-Term Outcomes
Increase in healthy pregnancies and improved birth outcomes (when services are delivered prenatally)

Increase in parents' knowledge of their child's emerging development and age-appropriate child development
> Parents are knowledgeable about their child's current and emerging language, intellectual, social-emotional, and motor development
> Parents recognize their child's developmental strengths and possible delays
> Parents are familiar with key messages about healthy births, attachment, discipline, health, nutrition, safety, sleep, and transitions/routines

Improved parenting capacity, parenting practices, and parent-child relationships
> Parents understand that a child's development influences parenting responses
> Parents display more literacy and language promoting behaviors
> Parents demonstrate positive parenting skills, including nurturing and responsive parenting behaviors and positive discipline techniques
> Parents show increased frequency, duration, and quality of parent-child interactions

Early detection of developmental delays and health issues
> Children will have increased identification and referral to services for possible delays and vision/hearing/health issues

Improved family health and functioning
> Improved quality of home environment
> Families link with other families and build social connections
> Parents are more resilient and less stressed
> Parents are empowered to identify and utilize resources and achieve family and child goals
> Families are connected to concrete support in times of need

### Intermediate Outcomes
Improved child health and development

Prevention of child abuse and neglect

Increased school readiness

Increased parent involvement in children's care and education

### Long-Term Outcomes
Strong communities, thriving families, and children who are healthy, safe, and ready to learn

## Findings

Parents as Teachers services are delivered within the larger context of a family and child's day-to-day life.  Each child and family's circumstances therefore affect (a) program engagement and retention and (b) their ability to receive and respond to program services.  These are important caveats to keep in mind when reviewing the program's results.

**Finding 1:** The faithful delivery of services to the target population is the first milestone for achieving desired results.  The current study finds that South Carolina's Parents as Teachers programs are recruiting, serving, and retaining eligible children, parents, and families.  The evidence that supports this finding is found in program service statistics, including (a) proportion of clients with multiple risk factors being entered into and receiving services; (b) intensity and duration of services delivered; and (c) client retention statistics.  Especially pertinent is the program's focus on highly vulnerable children and families.  Over time, the program has increased its emphasis on this high-risk population and is capably responding to child and family needs.

**Finding 2:** The second milestone for achieving desired results is the achievement of short-term, or direct, outcomes, as a result of services received.  The current study finds that South Carolina's PAT programs are achieving short-term outcomes, including: (a) linking of children and families to needed services and resources, (b) identifying children who may qualify for special education services, and (c) changes in parenting capacity, skills, and behaviors (as measured by the KIPS, which focuses on parenting behaviors, and the ACIRI, which focuses on adult and child literacy behaviors).  Changes in these direct outcomes are the earliest signals that the program is achieving its desired results—and that there is confidence that later, or longer-term, outcomes are possible.  Helping parents develop intentional and constructive behaviors and skills is critical--these are the skills that parents can draw upon not only at a child's kindergarten entry but throughout the child's academic career.

**Finding 3:** The next milestone examined in the current study was the achievement of intermediate outcomes such as school readiness.   CIRCLE data provided by the Department of Education, when linked to program data, suggest:
- For the most part, there is an absence of sizable mean differences in CIRCLE scores between children served with PAT and those not served by PAT.  To the extent that children served by

PAT have significant (and numerous) risk factors, this finding suggests that PAT children are approaching or performing at or near their peers at prekindergarten and kindergarten entry. In short, the data suggest that PAT children are coming alongside their less vulnerable or less disadvantaged peers. This finding is important to examine when reflecting upon the program's goal of helping vulnerable children come to perform on, or close to on, par with less vulnerable peers.

- There are notable differences associated with race or ethnicity. Caucasian students tended to have the highest mean scores while Hispanic children tended to have the lowest mean scores. African-American, Native American, and Asian/Pacific Island students demonstrated comparable mean scores (with some exceptions). This finding is important to reflect upon when considering patterns in access to and use of supportive services throughout the state.

**Finding 4:** The final milestone examined in the current study was longer-term student success, as measured by grade retention. The study finds that there were no significant differences in grade retention between PAT and non-PAT students. To the extent PAT students represent highly vulnerable families and developmental circumstances, this is evidence that programs such as PAT are associated with positive outcomes for children[31]. For many vulnerable children, therefore, PAT services may be contributing to their ability to "hold their own" upon entering school. As noted above, this is an important finding when reflecting on program goals, especially goals for children and the ability of children to start their academic careers on equal footing.

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[31] An important note is that the current study is not experimental in design. Therefore, the findings from the current study may be considered correlational, but not causal.

# Appendix A.

# National PAT Essential Requirements

**Parents as Teachers**

## ✳ Essential Requirements

The following are the essential requirements for an organization to become and remain a Parents as Teachers affiliate with approval to implement the PAT model. Implementation and service delivery data that address the essential requirements are reported at the end of each program year on the Affiliate Performance Report (APR)[1]. New affiliates' intentions to comply with these requirements are initially demonstrated through the Affiliate Plan.

| Essential Requirements | Measurement Criteria |
|---|---|
| 1. Affiliates provide at least two years of services to families with children between prenatal and kindergarten entry. | Your affiliate is designed to provide at least two years of services to families with children between prenatal and kindergarten entry. |
| 2. The minimum qualifications for parent educators are a high school diploma or GED and two years previous supervised work experience with young children and/or parents. | 100% of your affiliate's parent educators (PEs) have at least a high school diploma, GED or equivalent degree in countries outside the US. |
| 3. Each affiliate has an advisory committee that meets at least every 6 months (can be part of a larger committee, community network or coalition as long as the group includes a regular focus on the Parents as Teachers affiliate). | Your affiliate conducted 2 advisory committee meetings during the program year covered by the most recent APR. |
| 4. Each month, parent educators working more than .5 FTE participate in a minimum of two hours of individual reflective supervision and a minimum of two hours of staff meetings and parent educators working .5 FTE or less participate in a minimum of one hour of reflective supervision and two hours of staff meetings.<br>> *In order to support high quality services to families, this requirement includes supervisors who carry a caseload.* | 100% of parent educators working more than .5 FTE who were employed the full program year received at least 18 hours of reflective supervision during the program year covered by the most recent APR. |
| | 100% of parent educators working .5FTE or less who were employed the full program year received at least 9 hours of reflective supervision during the program year covered by the most recent APR. |
| | At least 18 hours of staff meetings occurred during the program year covered by the most recent APR. |
| 5. Each supervisor, mentor or lead parent educator is assigned no more than 12 parent educators, regardless of whether the parent educators are full-time or part-time employees.<br>> *The number of PEs assigned to the supervisors is adjusted proportionately when the supervisor is not full-time. For example, a .75 FTE supervisor would have a maximum of 9 PEs; a .5 FTE would have a maximum of 6 PEs; a .25 FTE would have a maximum of 3 PEs.* | 100% of your affiliate's 1.0 FTE supervisors are assigned a maximum of 12 PEs. |
| 6. All new parent educators in an organization who will deliver Parents as Teachers services to families attend the Foundational and Model Implementation Trainings before delivering Parents as Teachers; new supervisors attend at least the Model Implementation Training. | 100% of PEs and supervisors have attended the required PAT trainings. |
| 7. Parent educators obtain competency-based professional development and training and renew certification with the national office annually. | 100% of model affiliate PEs are up to date with their certification. |
| 8. Parent educators complete and document a family-centered assessment within 90 days of enrollment and then at least annually thereafter, using an assessment that addresses the Parent as Teachers required areas. | At least 60% of families enrolled more than 90 days had an initial family-centered assessment completed within 90 days of enrollment during the program year covered by the most recent APR. |
| | At least 60% of families that received at least 1 personal visit had a family-centered assessment completed in the program year covered by the most recent APR. |

| Essential Requirements | Measurement Criteria |
|---|---|
| 9. Parent educators develop and document goals with each family they serve. | At least 60% of the families that received at least 1 personal visit had at least 1 documented goal during the program year covered by the most recent APR. |
| 10. Parent educators use the foundational visit plans and planning guide from the curriculum to design and deliver personal visits to families. | PEs consistently used the foundational visit plans and planning guide from the curriculum to design and deliver visits to families. |
| 11. Families with 1 or fewer high needs characteristics receive at least 12 personal visits annually and families with 2 or more high needs characteristics receive at least 24 personal visits annually. | At least 60% of families with 1 or fewer high needs received at least 75% of the required number of visits in the program year covered by the most recent APR. |
| | At least 60% of families with 2 or more high needs receive at least 75% of the required number of visits in the program year covered by the most recent APR. |
| 12. Full-time 1st year parent educators complete no more than 48 visits per month during their first year and full-time parent educators in their 2nd year and beyond complete no more than 60 visits per month.<br><br>⟩ *The number of visits completed monthly is adjusted proportionately when a parent educator is part time. In addition, a number of factors need to be considered when establishing the maximum number of visits completed monthly, including parent educators' total responsibilities, travel time for visits, data collection responsibilities and program supports.* | Full time 1st year PEs complete no more than 48 visits per month in the program year covered by the most recent APR. |
| | Full time PEs in their 2nd year and beyond complete no more than 60 visits per month in the program year covered by the most recent APR. |
| 13. Affiliates deliver at least 12 group connections across the program year. | Your affiliate delivered at least 9 of the 12 (75%) required group connections in the program year covered by the most recent APR. |
| 14. Screening takes place within 90 days of enrollment for children 4 months or older and then at least annually thereafter (infants enrolled prior to 4 months of age are screened prior to 7 months of age). A complete screening includes developmental screening using PAT approved screening tools, along with completion of a health review that includes a record of hearing, vision, and general health status. Developmental domains that require screening include language, intellectual, social-emotional & motor development. | At least 60% of the children enrolled at age 4 months or older had a complete initial screening within 90 days of enrollment in the program year covered by the most recent APR. |
| | At least 60% of the of children enrolled prior to age 4 months and who reached 7 months of age before the end of the program year had a complete initial screening prior to 7 months of age in the program year covered by the most recent APR. |
| | At least 60% of children received a complete a screening in the program year covered by the most recent APR. |
| 15. Parent educators connect families to resources that help them reach their goals and address their needs. | At least 60% of families that received at least 1 personal visit were connected by their PE to at least 1 community resource in the program year covered by the most recent APR. |
| 16. At least annually, the affiliate gathers and summarizes feedback from families about the services they've received, using the results for program improvement. | Your affiliate gathered and summarized feedback from families about the services they have received at least once during the program year covered by the most recent APR and used the results for program improvement. |
| 17. The affiliate annually reports data on service delivery and program implementation through the APR; affiliates use data in an ongoing way for purposes of continuous quality improvement. | Your affiliate submitted the most recent APR. |

50

# SC First Steps to School Readiness
# FY14 Partnership Standards

## FIRST STEPS PROGRAM AND ACCOUNTABILITY STANDARDS PARENTS AS TEACHERS (201)

### REQUIREMENTS FOR FY14:

*First Steps' parent home visitation strategies are designed to equip adult clients with the knowledge and skills necessary to promote the school readiness, healthy development and long-term success of their preschool-aged children. Partnerships funding these strategies shall ensure vendor compliance with each of the following:*

**1) TARGETING:**

**Targeting Clients At-Risk Of Early School Failure**
At least 60% of home visitation clients shall be identified on the basis of two (2) or more of the readiness risk factors below (with 100% of client families possessing at least one risk factor at the time of enrollment):
- A preschool-aged child has been abused
- A preschool-aged child has been neglected
- A preschool-aged child has been placed in foster care
- Eligibility for the Supplemental Nutrition Assistance Program (SNAP, e.g. Food Stamps) or Free School Lunches (130% of federal poverty level or below – with first priority given to TANF-eligible clients whose annual family income levels fall at 50% of federal poverty level or below)
- Eligibility for services under the Individuals with Disabilities Education Act, Parts B (Preschool Special Education, ages 3-5) or C (BabyNet, ages 0-3)
- A preschool aged child with a developmental delay as documented by a physician or standardized assessment
- Teenage mother/primary caregiver (at the time of the focus child's birth)
- Low maternal/primary caregiver education (less than high school graduation at the time of focus child's birth)
- A preschool-aged child has been exposed to the substance abuse of a caregiver
- A preschool-aged child has been exposed to parental/caregiver depression
- A preschool-aged child has been exposed to parental/caregiver mental illness
- A preschool-aged child has been exposed to parental/caregiver intellectual disability
- A preschool-aged child has been exposed to domestic violence within the home
- Low birth weight (under 5.5 lbs.) in association with serious medical complications

**Targeting By Age (Early Intervention)**
At least 70% of newly enrolled client households shall contain an expectant mother and/or a child under thirty-six months of age. In the event that unique and/or emergency circumstances warrant, Partnerships may enroll additional clients aged three-years or older with the provision of written justification to SC First Steps.

**Client Retention**
In order for home visitation to be effective, it is critical that client families remain in the program long enough to benefit from the planned intervention. Each partnership will be required to demonstrate its successful, long-term retention of 75% of its home visitation clients across nine or more months of program participation. Pursuant to national model guidelines PAT affiliates must plan to provide at least two full years of service to eligible families.

**2) SERVICE DELIVERY:**

**Fidelity to a published, research-based model**

In order to ensure the delivery of high quality services and the validity of agency-wide evaluation efforts, vendors shall ensure that each First Steps-funded parenting/family strengthening strategy is implemented with fidelity to its published, research-based model. "Fidelity" is defined as complying with model specifications relating to:

**A. Home Visit Intensity and Delivery:**

- Programs shall match the intensity of their service delivery to the specific needs of each family, with no client to receive less than 2 visits monthly. Clients identified as possessing two (2) or more board-approved risk factors shall receive home visitation up to weekly as the needs and availability of the family dictate. (For purposes of grant renewal, conditional approvals will be issued to Partnerships averaging fewer than 2.0 visits per family, per month.)

- First Steps funded P.A.T. programs shall maintain formal affiliate status via the Parents as Teachers National Center. SC First Steps will continue hosting regular conference calls to assist vendors with tracking and meeting new model requirements. (Note that the PAT National Center will soon require affiliate programs operating on academic calendars to document their year-round service delivery to an as yet unspecified proportion of clients. Programs currently operating on academic calendars are asked to begin planning for the incorporation of this national model requirement.)

- In households in which two or more preschool-aged children reside, vendors are permitted – but not required – to conduct separate visits designed to address the development of individual children. Alternately, curriculum information relating to the needs of each child may be combined into a single visit of greater duration.

- While PAT is ideally suited for delivery within the home (and home-based visitation expected as the primary method of service delivery), visits may be approved for delivery at an alternate location (a childcare center, family resource center, etc) as either the documented needs of the family or safety of the visitor dictate. The alternative location must be suitable to delivery of parenting services such that integrity of the session and confidentiality of clients is maintained. Regardless of location, all visits must be one-on-one (First Steps-funded PAT visits may not be delivered in group settings), entail the use of PAT-specific lesson plans and last at least 45 minutes.

- Data on each home visit shall be entered into the FSDC client database system within 14 days of completion. In the event that the Partnership has identified an individual responsible for all client data entry, vendors shall formally submit this information to the Partnership within this same 14 day window for subsequent entry.

- No parent educator may carry a caseload of more than twenty (20) active families. Smaller case loads may be necessary based upon the intensity of services provided (ex: weekly home visits) or as determined by individual family needs. In determining minimum caseload, programs shall take per-visit cost allocation (detailed in Section 4 below) into account.

**B. Group Connections:**

- At least one parent education group meeting will be offered each month (per vendor or area of service if large program) shall be offered, for a total of 12 per program year.

**C. Screenings and Referrals:**

- Parenting vendors shall document the completion of all model-related health and developmental screenings to include hearing, vision, use of milestone checklists, dental checks, etc.

- Vendors shall seek to ensure that each participating client family is connected with a pediatric medical home and other community services as appropriate.

- Each client child shall be assessed using an age-appropriate developmental screening tool (e.g. Ages & Stages, Brigance, DIAL-3, etc.). In the event that a developmental screening (conducted in association with any First Steps-funded program) indicates a possible developmental delay, the vendor shall collaborate with parents/guardians to seek the consensual provision of these results to: (a) the child's pediatric care provider, *and* (b) either BabyNet (ages 0-3) or the child's zoned school district and Disabilities and Special Needs Board (ages 3-5) for additional diagnostic evaluation. Vendors shall maintain (within the First Steps Data Collection

System) referral records to include information on the outcome/disposition of each First Steps-initiated referral.

- Partnerships and their funded vendors shall ensure active collaboration with other parenting and family support services in their communities, refer families to these services as necessary, and follow up as feasible to ensure that appropriate connections have been established. Active and sustained efforts to connect client families to pediatric medical homes shall be a priority.

### D. Family Assessment and Goal Setting

- First Steps PAT vendors shall adhere to national model requirements pertaining to use of the Life Skills Progression (LSP), an approved family needs assessment tool.
- All parenting and family strengthening vendors shall develop well-documented Family Service Plans between the home visitor and families (using the PAT Goal Setting form) within 3 months of the enrollment of each within the program, and subsequently update these plans at least semi-annually to gauge progress and goal attainment.

### E. Integrated Service Delivery:

- Partnerships shall utilize the Life Skills Progression and/or other formal and informal needs assessments to refer/ link families to additional interventions as necessary and beneficial – either simultaneously or as part of a planned, multi-year service continuum.
- Each First Steps County Partnership shall convene an advisory committee at least twice yearly. These meetings shall incorporate community stakeholders in an effort to identify service gaps, and increase collaborative service referrals. This committee also advises, provides support for and offers input to the affiliate program for planning and evaluation purposes.

### F. Staff Qualifications and Training

- All P.A.T. educators must possess at least a two-year degree in early childhood education or a closely related field and document successful completion of/initial certification in P.A.T.'s *Foundational and Model Implementation Training*. Educators whose caseloads include children aged 3-5, must also be maintain the *P.A.T. (3-5)* add-on certification.
- Each P.A.T. program shall be overseen by one or more individuals certified as PAT Supervisors.
- Each parent educator in a First Steps-funded program shall successfully complete (as part of his/her annual recertification and regardless of his/her individual funding source) at least three hours of annual professional development approved by SC First Steps and document the successful completion of all national model requirements related to ongoing professional development hours. Annual training and/or recertification (for both the program and individual staff members) must be documented on-site by each vendor for annual submission to SCFS.
- Each parent educator shall maintain annual re-certification in the Keys to Interactive Parenting Scale (KIPS).

### G. Ongoing Program Quality Assessment

- Each P.A.T. vendor shall participate in the PAT affiliate quality validation every 4th year and make ongoing use of the *PAT Parent Evaluation* (annually), *Parent Educator Performance Evaluation* (annually), *Parent Educator and Supervisor Self-Evaluations* (annually), *Program Evaluation by Parent Educators* (annually) and *Peer Mentor Observation* (optional). Each program must submit an Affiliate Performance Report to PAT and South Carolina First Steps by July of each year.
- Each participating First Steps Partnership shall convene a monthly supervisory meeting of all pertinent program/vendor staff (to include those staff members providing both supervision and direct service to families) to review recruitment, standards compliance, programmatic data and other issues related to strategy success.
- Parent educators shall participate in individualized reflective supervision meetings with their supervisors monthly.

**3. ASSESSMENT AND DATA SUBMISSION:**

- All First Steps-funded vendors shall complete, at minimum, baseline and post assessments of the *primary adult client* identified within each enrolled case using the Keys to Interactive Parenting Scale (KIPS). A baseline KIPS assessment shall be completed within 45 days of each client's initial enrollment, with a post assessment conducted 6-9 months later, at each 12 month interval thereafter and/or within 30 days of planned program completion.. Partnerships shall ensure that each KIPS assessor is currently certified by the authors and shall include all costs associated with this assessment within their budget spending plans.
- In addition to the KIPS, each family containing children aged 2½ - 5 shall have their interactive literacy behaviors assessed (pre- and post-, with the initial assessment conducted within 45 days of a child within the household reaching 30 months of age) by a trained evaluator making use of the Adult-Child Interactive Reading Inventory (ACIRI). Each family educator making use of the ACIRI shall document his/her attendance at a First Steps sponsored training on the instrument.
- SC First Steps may conduct randomized KIPS/ACIRI reliability monitoring. Sample client videos may be requested for confidential scoring review and shall be maintained on site for potential review for a period spanning four months from the date of original administration.
- Note that both the KIPS and ACIRI are utilized as assessments of adult behaviors and thus need not be completed with each adult-child pairing in the household. Post assessments should, however, assess the interactions of the same adult-child pairing observed during the baseline assessment.
- Client demographic, program and assessment data shall be collected within the First Steps Data Collection System (FSDC).

**4. COST ALLOCATION:**

- For each $150 budgeted to a parent home visitation strategy, partnerships shall document their successful delivery of at least one home visit.

# Appendix C.

# Detailed Tables of Findings and Results

## Table A. Cases of Specific Risk Factors, 2008-2016

| Risk Factors | 2008-09 (n=1,179) # | % | 2009-10 (n=1,392) # | % | 2010-11 (n=1,142) # | % | 2011-12 (n=1,126) # | % | 2012-13 (n=1,148) # | % | 2013-14 (n=1,084) # | % | 2014-15 (n=1,073) # | % | 2015-16 (n=1,005) # | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TANF Eligible | 913 | 77.40 | 1029 | 73.89 | 862 | 75.44 | 771 | 68.43 | 742 | 64.63 | 730 | 67.34 | 713 | 66.45 | 633 | 62.99 |
| SNAP Eligible | 3 | 0.25 | 995 | 71.47 | 957 | 83.76 | 996 | 88.41 | 1000 | 87.06 | 948 | 87.45 | 971 | 90.45 | 898 | 89.30 |
| IDEA Part C or Part B Eligible | 0 | 0.00 | 101 | 7.26 | 115 | 10.03 | 141 | 12.52 | 110 | 9.58 | 101 | 9.27 | 96 | 8.90 | 96 | 9.50 |
| Referred for Abuse | 12 | 0.98 | 19 | 1.36 | 28 | 2.45 | 19 | 1.69 | 35 | 3.05 | 52 | 4.80 | 37 | 3.45 | 31 | 3.08 |
| Referred for Neglect | 22 | 1.82 | 40 | 2.87 | 29 | 2.54 | 31 | 2.75 | 45 | 3.92 | 56 | 5.17 | 55 | 5.13 | 23 | 2.29 |
| Foster Child | 14 | 1.15 | 26 | 1.87 | 29 | 2.54 | 30 | 2.66 | 24 | 2.09 | 33 | 3.04 | 19 | 1.77 | 14 | 1.34 |
| Teen Custodial Parent | 406 | 34.42 | 366 | 26.31 | 341 | 29.86 | 322 | 28.60 | 276 | 24.04 | 238 | 21.91 | 241 | 22.46 | 176 | 17.51 |
| Mother < HS grad | 565 | 47.95 | 596 | 42.80 | 566 | 49.56 | 534 | 47.38 | 484 | 42.16 | 413 | 38.10 | 396 | 36.86 | 353 | 35.12 |
| Substance Abuse | 27 | 2.25 | 51 | 3.66 | 74 | 6.44 | 54 | 4.80 | 70 | 6.10 | 52 | 4.75 | 63 | 5.87 | 42 | 4.18 |
| Exposed to caregiver depression | 89 | 7.55 | 99 | 7.11 | 209 | 18.30 | 245 | 21.76 | 265 | 23.08 | 287 | 26.43 | 273 | 25.40 | 148 | 14.68 |
| Exposed to caregiver mental illness | 0 | 0.00 | 1 | 0.07 | 28 | 2.41 | 41 | 3.64 | 42 | 3.66 | 57 | 5.26 | 59 | 5.50 | 43 | 4.28 |
| Exposed to caregiver intellectual disability | 0 | 0.00 | 0 | 0.00 | 36 | 3.15 | 32 | 2.84 | 48 | 4.14 | 51 | 4.70 | 48 | 4.47 | 52 | 5.17 |
| Domestic Violence | 23 | 1.98 | 43 | 3.09 | 88 | 7.71 | 83 | 7.37 | 90 | 7.80 | 95 | 8.76 | 96 | 8.95 | 69 | 6.87 |
| Low Birth Weight[32] and/ or serious medical complications | 107 | 9.03 | 124 | 8.87 | 159 | 13.92 | 143 | 12.70 | 134 | 11.67 | 118 | 10.84 | 113 | 10.48 | 109 | 10.85 |
| Pre-K aged child with developmental delay | 0 | 0.00 | 0 | 0.00 | 1 | 0.09 | 67 | 5.95 | 83 | 7.23 | 84 | 7.75 | 79 | 7.32 | 91 | 9.00 |

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[32] Birth weight *<= than 5.5 lbs/2500 grams in association with poverty level <= of 130% of Federal Poverty*

## Table B. Prevalence of Family Risk Factors, 2008-2016

| Cases with Risk Factors | 2008-09 (n=1,179) | | 2009-10 (n=1,392) | | 2010-11 (n=1,142) | | 2011-12 (n=1,126) | | 2012-13 (n=1,148) | | 2013-14 (n=1,084) | | 2014-15 (n=1,073) | | 2015-16 (n=1,005) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Cases with 0 risks | 73 | 6.19 | 49 | 3.52 | 7 | 0.61 | 2 | 0.18 | 4 | 0.35 | 3 | 0.28 | 1 | 0.09 | 3 | 0.30 |
| Cases with 1 risk | 423 | 35.88 | 241 | 17.31 | 76 | 6.65 | 60 | 5.33 | 51 | 4.44 | 43 | 3.97 | 42 | 3.91 | 23 | 2.29 |
| Cases with 2 risks | 369 | 31.30 | 445 | 31.97 | 278 | 24.34 | 275 | 24.42 | 345 | 30.05 | 271 | 25.00 | 253 | 23.58 | 167 | 16.62 |
| Cases with 3+ risks | 314 | 26.63 | 657 | 47.20 | 781 | 68.39 | 789 | 70.07 | 748 | 65.16 | 767 | 70.76 | 777 | 72.41 | 812 | 80.80 |

**Table C. Client Retention, 2008-2016**

| Retention | 2008-09 (n=9)* | 2009-10 (n=1,383) | 2010-11 (n=1,130) | 2011-12 (n=1,124) | 2012-13 (n=1,139) | 2013-14 (n=1,075) | 2014-15 (n=1,067) | 2015-16 (n=1,002) |
|---|---|---|---|---|---|---|---|---|
| Average number of months enrolled - *Mean (SD)* | 9.67 (3.08) | 7.37 (3.39) | 7.72 (3.62) | 8.14 (3.36) | 8.34 (3.63) | 8.79 (3.53) | 8.32 (3.75) | 8.85 (3.67) |
| Percent with 9 or more months enrollment - *% (n)* | 66.67 (6) | 44.90 (621) | 51.50 (582) | 54.45 (612) | 59.44 (677) | 64.37 (692) | 58.95 (629) | 60.98 (611) |
| Percent enrolled for 2 years or more | 0.00 (0) | 0.14 (2) | 5.29 (60) | 20.11 (226) | 23.69 (271) | 28.86 (312) | 31.25 (335) | 32.17 (323) |

- *Note: 2008-09 n's are small due to missing dates in the First Steps PAT retention dataset

**Table D. Home Visit Frequency, 2008-2016**

| Frequency of Home Visits | 2008-09* | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 |
|---|---|---|---|---|---|---|---|---|
| Total annual home visits | 16,730 | 19,303 | 22,180 | 20,694 | 21,556 | 21,431 | 19,567 | 18,973 |
| Total families with home visitation data | 9 | 1,379 | 1,120 | 1,122 | 1,137 | 1,164 | 1,055 | 993 |
| Average visits per family per month - *Mean (SD)* | 1.96 (.36) | 1.99 (1.22) | 2.55 (1.28) | 2.31 (.99) | 2.32 (.81) | 2.32 (1.27) | 2.26 (.94) | 2.30 (.96) |
| Percent of families with 2+ visits per month - *% (n)* | 66.67 (6) | 46.48 (641) | 72.23 (809) | 72.19 (810) | 75.02 (853) | 75.75 806) | 76.30 (805) | 77.84 (773) |

- *Note: 2008-09 n's are small due to missing dates in the First Steps PAT retention dataset

**Table E. Home Visit Duration, 2008-2016**

| Duration of Home Visits | 2008-09* | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 |
|---|---|---|---|---|---|---|---|---|
| Total families with home visitation data | 9 | 1,379 | 1,120 | 1,122 | 1,137 | 1,164 | 1,055 | 993 |
| Average duration of visits in hours - *Mean (SD)* | 1.16 (.44) | 1.14 (.41) | 1.13 (.42) | 1.12 (.37) | 1.11 (.35) | 1.18 (.42) | 1.14 (.34) | 1.10 (.28) |
| Percent of home visits of 45 minutes or more - *% (# Visits)* | 97.68 (16,342) | 98.60 (19,033) | 98.61 (21,871) | 98.45 (20,374) | 98.98 (21,337) | 99.58 (21,342) | 99.66 (19,500) | 99.59 (18,896) |
| Percent of home visits of 60 minutes or more - *% (# Visits)* | 89.73 (15,011) | 91.84 (17,727) | 89.39 (19,826) | 89.91 (18,606) | 89.74 (19,345) | 94.55 (20,263) | 95.76 (18,737) | 96.45 (18,300) |

- *Note: 2008-09 n's are small due to missing dates in the First Steps PAT retention dataset

**Table F. Group Meetings, 2008-2016**

| Group Meeting | 2008-09*<br>(n=9)* | 2009-10<br>(n=1,424) | 2010-11<br>(n=1,134) | 2011-12<br>(n=1,137) | 2012-13<br>(n=1,143) | 2013-14<br>(n=930) | 2014-15<br>(n=713) | 2015-16<br>(n=484) |
|---|---|---|---|---|---|---|---|---|
| Average number of meetings attended/month – *Mean (SD)* | .23<br>(.28) | .28<br>(.54) | .31<br>(.54) | .28<br>(.41) | .25<br>(.40) | .26<br>(.40) | .28<br>(.41) | .31<br>(.44) |
| Percent of families attending at least one meeting per year- *% (n)* | 55.56<br>(5) | 50.18<br>(692) | 55.06<br>(615) | 59.77<br>(670) | 53.30<br>(605) | 57.24<br>(609) | 61.27<br>(644) | 63.54<br>(631) |

- *Note: 2008-09 n's are small due to missing dates in the First Steps PAT retention dataset

**Table G. Health Screenings, 2008-2016**

| Screenings | 2008-09 (n=1,179) | 2009-10 (n=1,392) | 2010-11 (n=1,142) | 2011-12 (n=1,126) | 2012-13 (n=1,148) | 2013-14 (n=1,084) | 2014-2015 (n=1,073) | 2015-2016 (n=1,005) |
|---|---|---|---|---|---|---|---|---|
| Percent of children receiving vision screenings - % (n) | 20.87 (246) | 17.17 (239) | 17.95 (205) | 12.88 (145) | 16.20 (186) | 16.88 (183) | 78.01 (837) | 77.21 (776) |
| Hearing - *% (n)* | 21.37 (252) | 17.53 (244) | 19.09 (218) | 12.34 (139) | 18.03 (207) | 25.83 (280) | 74.93 (804) | 74.93 (753) |
| Dental - *% (n)* | 10.60 (125) | 9.55 (133) | 7.09 (81) | 6.22 (70) | 8.54 (98) | 10.15 (110) | 52.94 (568) | 65.67 (660) |

## Table H. Referrals, 2010-2016 (data not available for 2008-09 and 2009-10)

| Resource | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 |
|---|---|---|---|---|---|---|
| Family Events/Activities | 598 | 573 | 707 | 1217 | 1049 | 859 |
| Other Referral | 354 | 312 | 382 | 486 | 440 | 426 |
| Library Resources | 224 | 102 | 120 | 183 | 167 | 165 |
| Early Education Program | 106 | 116 | 148 | 140 | 148 | 158 |
| Family Connection | 0 | 0 | 0 | 0 | 0 | 85 |
| Adult Education (Job Skills) | 20 | 30 | 24 | 18 | 12 | 51 |
| Adult Education (GED) | 73 | 73 | 51 | 62 | 63 | 36 |
| Employment Resources | 70 | 52 | 52 | 47 | 43 | 34 |
| DHEC - WIC | 41 | 43 | 14 | 12 | 47 | 33 |
| English Language Classes | 12 | 28 | 29 | 43 | 32 | 33 |
| Medical (Other) | 16 | 33 | 10 | 26 | 55 | 33 |
| Medicaid | 69 | 18 | 12 | 3 | 43 | 32 |
| Housing Resources | 45 | 41 | 42 | 27 | 40 | 31 |
| Speech Services | 29 | 23 | 27 | 32 | 24 | 31 |
| Food Assistance | 43 | 41 | 83 | 82 | 64 | 29 |
| DSS Food Stamps | 55 | 41 | 8 | 11 | 48 | 28 |
| Medical (Hearing) | 5 | 5 | 2 | 11 | 31 | 24 |
| Dental Services Provider | 39 | 13 | 15 | 21 | 28 | 15 |
| Other Case Management | 41 | 12 | 10 | 25 | 19 | 15 |
| Clothing/Household items assistance | 0 | 0 | 0 | 0 | 0 | 15 |
| Medical (Vision Screening) | 3 | 5 | 3 | 10 | 13 | 13 |
| Other Health/Medical Services | 19 | 16 | 11 | 39 | 17 | 13 |
| Child Abuse/Maltreatment Resources | 4 | 0 | 1 | 0 | 10 | 10 |
| Medical (Developmental Delay) | 23 | 6 | 10 | 5 | 12 | 10 |
| Transportation Resources | 19 | 8 | 13 | 8 | 5 | 10 |
| DSS other | 16 | 17 | 17 | 10 | 7 | 9 |
| Medical Home Adult | 19 | 16 | 3 | 4 | 9 | 9 |
| Domestic Violence Services | 5 | 4 | 6 | 3 | 12 | 8 |
| DSS TANF | 16 | 5 | 2 | 2 | 26 | 8 |

| Resource | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 |
|---|---|---|---|---|---|---|
| Financial Management Services | 10 | 1 | 3 | 44 | 9 | 7 |
| Mental Health Services | 14 | 9 | 11 | 7 | 17 | 7 |
| Dept. of Disabilities & Special Needs | 5 | 9 | 4 | 4 | 10 | 6 |
| Emergency Financial Assistance | 23 | 20 | 16 | 12 | 24 | 6 |
| Medical Home Pediatric | 36 | 10 | 8 | 1 | 3 | 4 |
| Vision Services | 8 | 3 | 3 | 4 | 1 | 4 |
| DSS Child Protective Services | 52 | 3 | 11 | 10 | 4 | 3 |
| Family Shelter | 5 | 3 | 5 | 6 | 4 | 2 |
| Medical (Immunizations) | 11 | 3 | 1 | 2 | 0 | 1 |
| Help Me Grow | 0 | 0 | 1 | 0 | 0 | 1 |
| DHEC - Children\'s Rehab Services | 2 | 1 | 0 | 0 | 0 | 0 |
| DHEC - Family Support Services (case mgt.) | 6 | 3 | 1 | 0 | 1 | 0 |
| CHIP Children\'s Health Insurance Program | 3 | 0 | 0 | 0 | 0 | 0 |
| Mentoring for New Mothers | 4 | 2 | 0 | 3 | 0 | 0 |